

SPOOL

A person wearing brown work clothes and boots is using a pickaxe to dig in the soil. The person is standing in a garden or field with some green plants and rocks visible in the background. The soil is dark brown and appears to be freshly turned.

Landscape Metropolis #6

the Garden in the
Landscape Metropolis

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SPOOL - Journal of Architecture and the Built Environment

SPOOL is a journal initiative in the field of 'architecture and the built environment'. It puts a strong emphasis on specific topics: Science of Architecture; Landscape Metropolis; Energy Innovation, Cyber-physical Architecture and Climate Adaptation. These topics refer to existing and upcoming research programmes/interests in Europe and beyond, and ensure a steady stream of potential copy. Treating these topics as threads within one journal allows SPOOL to focus on the interrelationship between the fields, something that is often lost in specialised journals. SPOOL welcomes within this framework original papers and associated open data on research that deal with interventions in architecture and the built environment by means of design, engineering and/or planning.

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Front: Gardening in Lisbon as an 'art of survival'. (© Udo Weilacher).

Back: Construction work for the extension of the A16 motorway on the 'Land of Chabot's'. (© Gerco de Ruijter)

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the Garden in the Landscape Metropolis

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In this issue of SPOOL Landscape Metropolis #6, designerly and discursive work on gardens in the metropolitan landscape is explored. The focus is on the garden as a theatre of landscape in the metropolis, where the city-dweller can stand face to face with natural processes, the *longue durée* of evolution and natural growth, silence, and open skies, as the counterpart to the excess of the urban programme. This notion of the garden as a theatre, a stage on which landscape and growth are performed, is explored by taking a closer look, spotting those places that merit attention in the vast metropolitan territory. Consequently, this is how we invite our readers to read this issue of SPOOL – by giving attention to the particular, while establishing links between one particularity and another, and to the overarching whole.

We have sought to collect contributions that focus on specific projects, but they are never only about that particular object. The aim was to reveal how the singular garden relates to the direct context of the wider metropolitan landscape and to the larger disciplinary context of theoretical concepts and design approaches. These affinities offer the possibility to engage in a field of academic research that is positioned in the encounter between research and practice, between critical distance and engaged proximity to the design process and project.

However influential metropolitan conditions are on daily life, they remain abstract and intangible for most of us. In order to make them perceptible, bringing them to the scale of human perception is key: the proximity that allows us to see, hear, or touch what is happening around us. It is here that the garden plays a role. Its small size allows it to be introduced into the metropolitan domain, making space where there doesn't seem to be any, remaining apart from the hustle and bustle of urban life, and allowing for sensory perception.

A garden provides a place and a time to focus our attention. A garden, by nature a modest place, impacts the feelings individuals have for the environment they live in. Nowadays, this environment can no longer be qualified as urban or landscape. Over the course of the last century, city and landscape have merged into an urban-landscape system, characterised by multiple modes of organisation and dynamic socio-spatial processes. In the metropolitan landscape, the landscape interacts with the metropolitan condition, as a permanent underlying substructure, as physical open space system and as metabolic process. If we consider the garden first and foremost as a spatial entity with the capacity to reflect nature and landscape, it is a valuable component in the metropolitan context, addressing environmental and social issues.

How does the garden express one's relationship to the metropolitan landscape? Which gardens—traditionally places for pleasure, study, and contemplation of nature—give expression to the tension between the metropolitan programmes of production and business, as well as learning, travel, and living? Which places have been designed or could be designed to (re)connect the seemingly separate worlds of the metropolitan

condition and landscape territory? Whereas in the call we explicitly referred to place, space, and perception of the garden in its physical surroundings, what the collection of papers demonstrates is that the garden can indeed be a compositional and perceptual expression of the metropolitan landscape, but that dynamics and processes cannot be ignored. One cannot discuss the perception of the garden without considering the complex time dimensions of the natural processes and one cannot discuss the perception of the metropolitan landscape without considering the complex time dimensions of social and economic processes.

When reading about a garden one imagines how the garden would influence one's state of mind, both after entering and after leaving. As the gardens in this issue of Spool are places of seclusion within the metropolitan territory, we cannot but think about the garden, considering the location and the differences of atmosphere, spatiality and cultivation between the inside and the outside. What is the garden's imprint seen in the light of this dichotomy? What is the imprint of these research papers on us, the editors, and therefore the first readers? The reflection on the relationship between the individual garden and the metropolitan landscape has led us to distinguish three types of contributions.

Case study papers

A first series of contributions in this issue are academic papers that take specific cases as an entry point for an argument on the role of the garden in the metropolitan condition. These cases range from existing gardens that have adopted a new role when the context changed under the influence of metropolitan conditions, to reflections on designs that successfully operate within a metropolitan context.

Sitong Luo studies the gardens on the roof of a concrete bunker in Saint-Nazaire, initiated by the landscape architect and gardener Gilles Clément. The paper reveals that an initial design intervention can lay the ground for increasing diversity and resilience over time. This is even more so a motive to look for wildness within the urban environment that we think is under our control.

Adrian Hawker uses the study of a garden as a lens to read the historic changes in society and land use. In the island city of Valletta the interplay of the logic of the landscape and that of metropolitan developments is so intense that they have truly become indistinguishable. This can be viewed on a map, but is hardly perceivable at ground level. One needs a place like a garden to experience what this interplay means.

Julian Raxworthy opens up our eyes to soil, the invisible place in which all plant life is rooted. It is evident that a gardener must know about his soil, but when the metropolitan developments claim more and more space, the ground becomes abstracted to measurements and dimensions. Instead, the consideration of the physical and spatial properties of, and access to, soil should have its place in urbanisation processes.

Bieke Cattoor and Valerie Dewaelheyns have studied private gardens in Brugge and Brussels to collect evidence that justifies an exploration of landscape design strategies that enables the garden complex of all private gardens in the metropolitan landscape, to become a powerful ecological, cultural, and social agency.



FIGURE 1 Map of the discussed gardens in this issue. (Drawing by Michiel Pouderoijen, 2020).

Visual essays

Secondly, in this issue of SPOOL we have introduced the form of the visual essay: a design proposal or an artistic expression, in order to facilitate the encounter between academia and practice. Rather than the critical distance of the academic, a visual essay allows for the engaged nearness of the practitioner: the artist or the landscape architect. Just how hard it is to bridge the gap between practice and academia is illustrated by the fact that the landscape architects and artists we invited (ZUS, Atelier Le Balto, Jeroen Doorenweerd) did not make it into the final selection for the issue. Although they make impressive and relevant work on the intersection between art, gardens, and the metropolitan landscape, it is something else to reflect upon how the singular design concept relates to the context of the wider metropolitan landscape, or to the larger disciplinary context of theoretical concepts and design approaches. The contributions that we did select aim to support critical investigations and to promote scholarly discourse on the arts and design culture in the field of the built environment.



FIGURE 2 Shoreline Park, Göteborg (S), Atelier Le Balto. This temporary park acts as the forerunner for the Jubileumsparken, which will be a vital part of the new district Frihamnen, the former industrial harbour of Göteborg. The temporary park makes the area a part of the city even before the housing district is realised, and acts as a series of test beds for the development of Jubileumsparken: experimental surface, plants, soils, materials, and furniture. (Photographs by Atelier Le Balto, 2017, 2020)



FIGURE 3 Luchtpark Hofbogen, Rotterdam (NL), ZUS. The park on the roof of the former Hofbogen train station is part of a heterogeneous ensemble of gardens in Rotterdam, both on and above ground level. Executed incrementally, whenever the situation provided a possibility, the design took place in a hybrid process between landscape activism and municipal involvement. The ensemble connects public and private, building and landscape space, nature, and culture. (Photograph by Ossip van Duivenbode, 2018)



FIGURE 4 Vortex Willem Wilmink Square, Enschede (NL), Jeroen Dooreweerd. This whimsical natural grotto with its baroque-romantic aesthetic does not belong in a city, nor in the Dutch landscape, and not at all in a newly-built square. It becomes an “other space”, or a “vortex” as Dooreweerd calls it: a whirlpool that sucks its surroundings in. Everything a vortex does is done in a violent or liberating way, as if it is a gateway to the unknown. This type of completely contrasting associations becomes a metaphor for imagination, for allowing yourself to fantasise that you are somewhere else. This is what art can do. (Photograph by Eric Brinkhorst, 2014)

Asbjørn Jessen uses the visual paper as research-by-design, to highlight how non-human life might survive in utterly human environments. Even the most unlikely sites can become a garden, if we wish to acknowledge the right to life of the unwanted plants and animals that have persevered in a brutalist housing estate in Copenhagen.

Our own interest in the relationship between the garden and the metropolitan landscape is expressed in the visual essay on the Land of Chabot in Rotterdam, where we describe how even a non-executed idea for a design can be a starting point to look at the metropolitan landscape in a different way. What was just a leftover piece of land is conceptualised as a garden with a “borrowed boundary”, as a means to discuss with the authorities involved the securing of a plot of land for observing the horizon within the city limits.

Overview essay

The final paper addresses the idea of the garden as a lens to look at the metropolitan landscape. Udo Weilacher gives an overview of the evolution of 20th century garden and park design, leading to the statement that in a time when the clear boundaries between city and landscape have dissolved into a hybrid metropolitan landscape, garden thinking is becoming more relevant than ever. Garden thinking involves relations between space and process, between culture and nature, between doing and perceiving, exactly those relations that we need to understand in order to act meaningfully in the metropolitan landscape.

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Gardens of Interstitial Wildness

Cultivating Indeterminacy in the Metropolitan Landscape

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Abstract

This paper looks into 'gardens of wildness' that have been established in metropolitan interstitial spaces. These unused, unfunctional urban spaces could be considered as spatial-temporary interstices of the metropolitan landscape. These 'interstitial spaces' possess the potential to host diverse social-ecological minorities that tend to be excluded by regulated urban spaces. The ecological qualities of interstitial spaces are recognised by French garden designer Gilles Clément, who regards spontaneous ecologies, which emerge in neglected spaces of the city, as cherished reservoirs that diversify and sustain the urban ecology. Specifically, this paper discusses the value of making gardens of interstitial wildness. If the garden is a potential design approach magnifying the quality of the place, what would be the role of interstitial wild gardens? Furthermore, how do these gardens respond to the relationship between interstitial spaces and the metropolitan landscape? In this paper we will analyse Gilles Clément's garden design of *Jardins du Tiers-Paysage* (Gardens of The Third Landscape), located on the roof of the repurposed submarine base of Saint-Nazaire (FR). Reading Saint-Nazaire's urban context and examining the design from ecological and experiential points of view, this paper shows how the gardens re-introduce the submarine base as a place in the metropolitan landscape of Saint-Nazaire. Orchestrating the experience of the site's spatial characteristics and the emerging wildness, the gardens elicit an appreciation of the autonomy of non-human agencies and simultaneously reflect upon the heterogeneity of the metropolitan landscape.

Keywords

garden, interstitial, wildness, landscape architecture, metropolitan landscape

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Introduction: Niches in the Metropolitan Landscape

In the middle of the city we can often find a large number of in-between spaces: empty backyards, overgrown plots, and abandoned rail tracks hidden in tightly built-up urban areas, covered with overgrown vegetation, visited incidentally by citizens and frequently by wild animals. Ignasi de Solà-Morales conceptualised these spaces as *Terrain Vagues*, the ambiguous spaces that exist inside the city but outside the city's functional network, and do not play a role in the city's production and efficiency (De Solà-Morales, 1995). An increasing number of contemporary scholars argue that such interstitial conditions actually offer potential for the city, allowing the emergence of alternative experiences, meaning, and human practices (Cupers & Miessen, 2002; Foster, 2014; Rahmann & Jonas, 2014). These leftover abandoned spaces could be captured as spatial-temporary interstices of the city: spatially in-between different urban functional spaces, and temporarily unoccupied, open for diverse social-ecological appropriations. The ecological potential of these interstices is brought forward by the French garden designer Gilles Clément, who conceptualises the amount of spaces abandoned from human exploitation, in the urban centre or perimeter, as "the third landscape". According to Clément, the third landscape refers to neglected reservoirs of biodiversity among the controlled and managed urban nature: "These margins bring together a biological diversity which has not yet been listed as wealth"¹ (Clément, 2004) (Fig.01).



FIGURE 1 An old industrial site in Duisburg Untermeiderich. After the halt of coal industry, numerous birch trees started to grow here. This process gradually recovers the site from industrial exploitation and manifests pieces of the third landscape. (Photograph by Sitong Luo, 2015).

In this article, we explore the relationship between interstitial spaces, gardens, and the metropolitan landscape. The metropolitan landscape is highly dynamic, fluid, and fragmented, defined by such issues as networks, programmatic proximity, and functional efficiency. According to Clemens Steenbergen, the metropolitan landscape is a patchwork of different functional spaces, connected by invisible networks and facilitated by overarching urban infrastructures (Steenbergen, Reh, & Pouderoijen, 2011). These spatial characteristics reveal an intention behind the organisation of space that no longer considers spatial qualities as the first requirement, but rather the functionality of each space. Tim Edensor exposes this pursuit of functionality as "a mechanic episteme that produces a series of single-purpose spaces where preferred

activities occur” (2005: 54). The metropolitan landscape, from a spatial perspective, is a sort of fragmented territory connected by diverse social and economic networks. Additionally, from a programme perspective, the majority of spaces in the metropolitan landscape function purposefully, leaving little room for unplanned and unexpected occurrences.

Interstitial spaces can be recognised as a symptom of the metropolitan landscape, produced by the diffused territory and dynamic urban transformations. Compared to other ordered urban spaces, interstitial spaces have a unique quality of indeterminacy, as they are released from urban functional schemes and open to diverse appropriation. This particularity of interstitial spaces makes them a relevant design subject. However, designing interstitial spaces poses a paradox between the definition of design and the interstices’ spontaneity. How can design engage with urban leftover spaces, to activate or manifest their qualities, while keeping their openness and indeterminacy? Moreover, designing them as gardens might expose the relationship between interstitial spaces and the metropolitan landscape. According to De Wit (2013), by means of an architectural design of gardens, interstitial spaces can be transformed into articulated places that reflect upon the surrounding metropolitan landscape. If gardens do indeed allow interstitial spaces to be experienced as meaningful places, then will it be possible for the gardens of interstitial wildness to bring together humanity and wild ecology? How can the design of these gardens allow for conditions of growth, while simultaneously manifesting the experiential and cultural significance of such processes? And how can these gardens reflect the metropolitan condition from which they are detached, while being interconnected with that very condition?

To answer these questions, we first delineate the theoretical background of wildness as a cherished component within the city, and the possible role of design. Following this discussion, we present the case study of Gardens of the Third Landscape (*Le Jardins du Tiers-Paysage*), focusing on two aspects: 1) how design prepares a better condition for the establishment of wild ecology and enriches the biodiversity of the site, and; 2) how these wild ecologies, through designing the garden, create a place in which people could appreciate the spontaneous agencies of nature. Therefore, the garden will be analysed from both an ecological perspective and a spatial-physical perspective, represented by a series of analytical drawings. The material under analysis is from the project office “Le Voyage à Nantes”, including design documents, photos, and the report produced by students from “Lycée Jules Rieffel” and gardener Mathias Petitjean after the construction of the garden. In addition, we have used photographs and notes taken during a site visit in August 2018.

Appreciating Urban Wildness

The meaning attached to wildness has changed throughout urban development. The image of wildness was originally regarded as being opposite to human-cultivated and controlled territories. The concept of wildness as a condition of a place of hazard, confusion, and danger has been commonly adopted since the Medieval period (Jorgensen, 2007: 446). In the 18th Century, as more natural territories were transformed into cultivated areas, wildness became regarded less as the anthesis of civilization, but as something primitive, sacred, and powerful. For example, in Burke’s contemplation of beauty and the sublime, he proposes “a sort of delightful horror” that could be summoned up by encountering wildness, through “the exposure to terror, provided one is not personally threatened” (Jorgensen, 2007: 448).

A subversion in the interpretation of wildness came about in the 20th Century, encouraged by a renewed interest in botanical research on wild flora within cities. Throughout the year 1940, French botanist Paul Jovet meticulously studied spontaneous flora in the city of Paris. Through his study, Jovet addressed the

heterogeneity of the urban ecology, a unique ecosystem that was highly dependent on artificial activities and accommodating a large number of exotic species (Gandy, 2013). In the 1960s, German ecologist Herbert Sukopp extensively investigated wild ecologies on abandoned industrial land in Berlin. According to Sukopp, the newly emerged ecosystem serves as reference for the design of urban nature, especially in terms of adaptive species and the renovation of disrupted sites (Sukopp, 1979). Inspired by those explorations of urban wildness, wild urban nature was added as a noteworthy category in urban ecological design discourse (Gandy, 2013).

Cultural geographer Tim Edensor's exploration of ruinous space establishes a unique link between urban wildness and urban interstitial spaces. According to Edensor, the wildness in neglected industrial ruins are spaces of 'resistance' where the practice of adaptive ecological initiatives reveals the strict management of most urban nature (Edensor, 2005). Jorgensen (2007) put forward that wildness in urban interstices brings new concepts both for theorising nature-human relationships and for urban landscape planning and design. Additionally, Gandy (2013) remarks that interstitial wildness serves as a useful counterpoint to the often-narrow utilitarian approaches of urban nature.

The growing interest in urban wildness gave rise to diverse design responses. Indeed, design has the capacity to introduce different levels of intervention in existing on-going ecological processes, forming a sort of "gradient". One extreme approach is ecological mimicry, where the planting scheme is deliberately arranged to create a natural-looking landscape. For instance, in the case of the High Line Park in New York City, the regeneration of an abandoned railway track took away most of the original species on the site and replaced them with an orchestrated combination of trees, woody shrubs, and a mixture of prairie grasses and blooming perennials. The maintenance of the new vegetation costs 4.3 million per year. The other extreme approach, at the opposite end to the mimicry of nature, proposes preventing the wildness from being touched by artificial intervention and leaving nature to take its own course. An example of this approach is the Landschaftspark Duisburg-Nord. The park's peripheral land is preserved for spontaneous ecological succession, revealing how nature transforms this exploited site. After few years, the area was already covered by pioneer young forest and meadows (Hemmings, 2010). In between these two approaches we could find a more interesting design concept, where artificial interference mediates an undefined natural process. The design intervenes in the site with clear architectonic form but leaves the outcome loosely defined. In Gilles Clément's approach, nature is invited to take over the process of transformation following the completion of the design. The role of the design is merely to actively transform the site in the initial stage, facilitating the more dynamic succession of nature.

Gilles Clément is a French garden designer, ecologist, and botanist. Clément regards nature as an evolutionary process leading to diversity and equivalence, and, in this context, he appeals to preserve parcels of land for natural processes alone, which serves "the genetic reservoir of the planet, the space of the future ..." (Clément, 2004)". Clément named nature that emerges in the abandoned urban spaces the "third landscape", where non-human agencies and non-utilitarian processes recover the sites from previous human exploitation processes.

To engage with the third landscape, and to address the question of "how to exploit diversity without destroying it" (Clément, Morris, & Tiberghien, 2015: 80), Clément conceived the "garden in motion" as a design-based response. The garden in motion explores how designers can insert themselves "in the midst of this (nature's) powerful flow" (Clément, 1991), where the design observes, guides, and enriches nature's own processes. A well-known example is le Jardin en Mouvement in *Parc André Citroën*, Paris. In this garden, the form of growth is prioritised to the ordered and aesthetic requirement of architectural design. Clément depicts his intervention as a constant dialogue with the site, caring for whatever emerges over the course of transformation. "Flowers which germinate on a path force the gardener to decide between maintaining the flowers or the path. The Garden in Motion recommends maintaining those species that is decided by

where they wish to grow...”²(Clément, 1991). In this garden, Gilles Clément brings forth the role of gardener as an observer rather than an intruder, where artificial intervention is established on the basis of fully acknowledging the existing conditions.

What follows the concept of a single garden, in Clément’s proposal, is an idea to consider the whole planet as a garden and each human being as its gardener. This perspective addresses a human-nature relationship in which the human is considered an integral part of ecology and collective human action influences the future of our planet. “What we do here will inevitably have repercussions over there, on the other side of the planet, to the extent that each one of us, in our daily activities, in our way of understanding the world and transforming it” (Clément, Morris & Tiberghien, 2015: ix). The concept sheds light on the cultural meaning of interstitial wild gardens: to elicit a consciousness of nature and, subsequently, of each individual’s responsibility to sustain our planet.

Gilles Clément was not the first to explore the role of the gardener in this way. His ideas resonate with the ‘Wild Gardening’ movement that began in the 1970s in Europe, which encourages the ‘natural’ growth of the garden. One of the main practitioners in this movement is the Dutch artist and gardener Louis Le Roy (Ruff, 2002). Le Roy calls himself an ‘ecotect’, as his representative work ‘ecocathedrals’ pursues an interplay between human being’s creative force and the constantly changing nature (Vollaard, 2002). Le Roy advocated for a devotion to the site through spending time in it, day by day, piece by piece. This approach does not give a definition to the site’s transformation at the very beginning of the project, but rather it would grow from a response to changes within the process. “Brief events or ‘spectacles’ can also release creative potential, but in the end, these activities must be able to take place in a process. In a time continuum. In order to affect a true evolution creation. Finally, involvement” (Vollaard, 2002: 22). Le Roy recognises nature as a system always in motion, within which the interaction between multiple individuals forms a dynamic equivalence and slowly drives the system towards diversity. Gardens as a design approach, within which the architectonic design mingles with spontaneous nature, can be a moderate intervention of interstitial wildness. This design thinking is tested in the project *Gardens of The Third Landscape*, a case which exposes the transformation of an abandoned submarine base’s roof into a garden of urban wildness.

Gardens of the Third Landscape

Gardens of the Third Landscape is a project of three gardens located on the roof of an abandoned submarine base in Saint-Nazaire, France: the Garden of Aspen Woods, the Garden of Stonecrops and Grasses, and the Garden of Labels. These gardens survive on the dry concrete roof without (extensive) artificial maintenance. The design deliberately improves the early stage of ecological conditions, to allow a wider range of flora that might adapt to the site’s condition. Beyond satisfying basic ecological functions, the design embellishes the garden with another layer of expression, amplifying the perception of the site. Each of the three gardens has a specific focus. While the Garden of Aspen Woods is more like an art installation and thus has a fixed ecological process, the Garden of Stonecrops and Grasses and the Garden of labels offer more interesting contents for the focus of this paper.

The Submarine Base in the Metropolitan Landscape

“Saint-Nazaire makes boats”, are the first words I heard from my landlord in Saint-Nazaire during my visit there in the summer of 2018. Sitting next to the estuary of the Loire, where the river joins the Atlantic Ocean, the story of Saint-Nazaire is tightly knit with the city’s harbour.

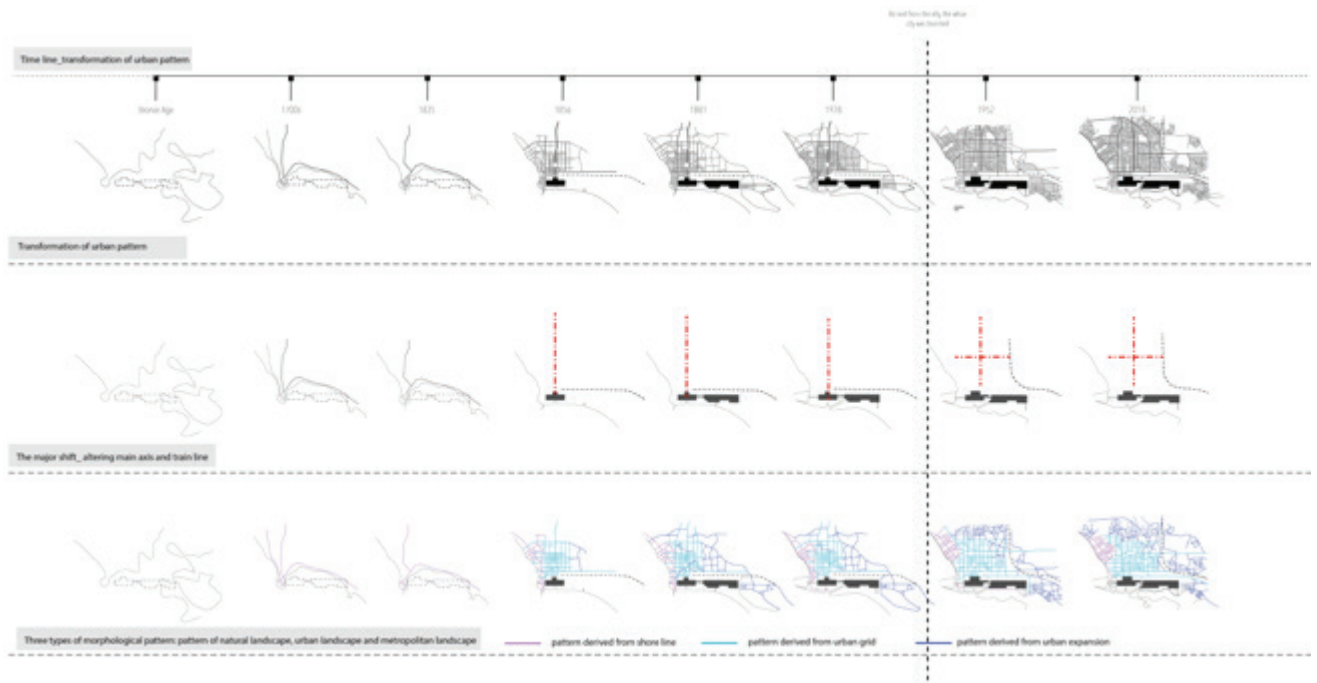


FIGURE 2 The recession of maritime industry changed the relationship between the harbour and the city. Since the railway became the dominant transport connection, the urban centre was gradually detached from the harbour. (Drawing by Sitong Luo, 2019).

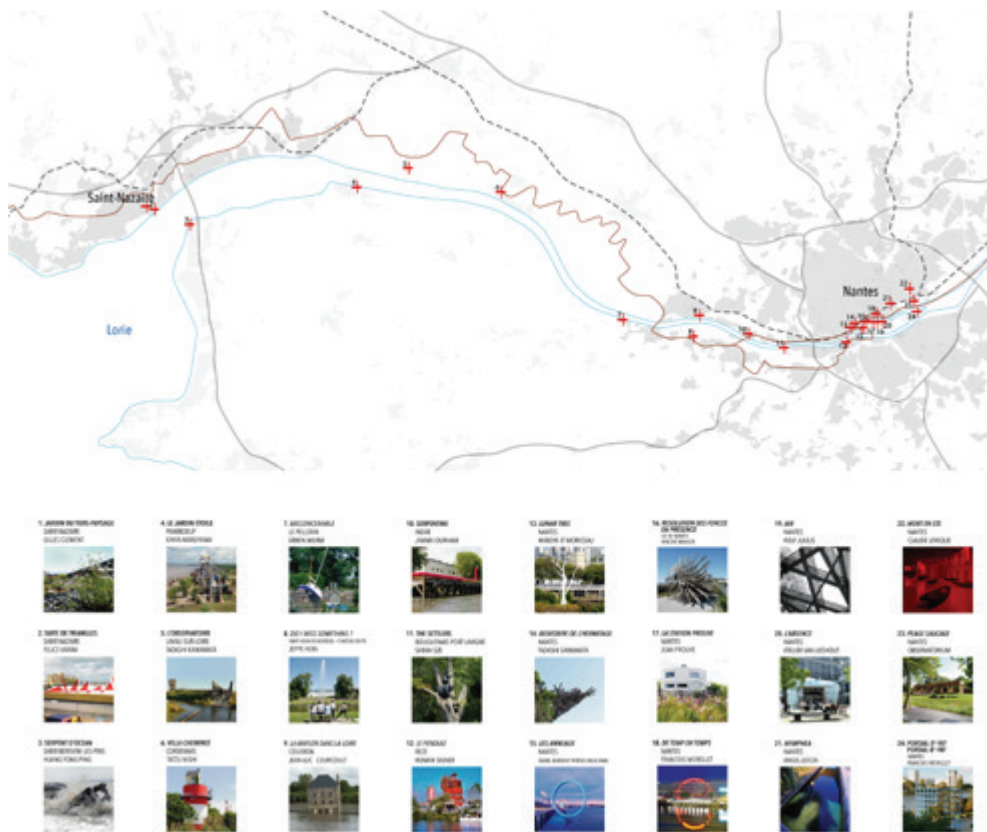


FIGURE 3 The artistic installations of the Estuary biennale, installed between 2007 and 2012. 24 pieces of in-situ art works were placed in and between Saint-Nazaire and Nantes, along the bank of river Loire, facilitating the establishment of a metropolitan region. (Drawing by Sitong Luo, 2019).

The advantages of the location of the estuary defined the city's growth. In the 18th Century, Saint-Nazaire was only a small fishing village while in the 19th Century, when the river corridor of the Loire was choked with mud, Saint-Nazaire became the first possible location to unload large cargos. As a result, two harbours (Saint-Nazaire and Penhoët) were dug at Saint-Nazaire, which further opened the city as a pivot point of maritime transportation. In 1862, the harbour area witnessed the construction of major shipbuilding facilities where the first French metal-hulled ship was constructed. Today, the ship building industry still constitutes a major part of the economy of the city. This unique geographical location also led to the city's fatal destruction. During the first and the second world wars, Saint-Nazaire was recognised as a critical military point on the Atlantic seafloor. In 1940, German troops conquered the city and constructed the submarine base at the harbour of Saint-Nazaire. At the end of the second world war, the submarine base was recognised as a target, which prompted a raid on 28 March 1942 that destroyed 85% of the town. During the post-war period, the harbour gradually became the backside of the city. This transition is visible in the plan for the city's reconstruction in 1956, in which the previous urban axis from the harbour was rearranged into two perpendicular axes, responding to the location of the new train station. The rationale for the new urban layout, in this way, is driven by infrastructure and network (Fig. 02). The train station indicates the connection of Saint-Nazaire to the larger metropolitan region of Saint-Nazaire and Nantes.

In 2009, the second edition of the biennale exhibition "Estuary" was launched. This programme, promoted by Nantes' Local Public Institution Le Voyage à Nantes, intended to strengthen the connection between Saint-Nazaire and Nantes and prepare for the development of the metropolitan region. In the 2009 edition, 30 art installations were placed between Nantes and Saint-Nazaire. These artistic works were created in-situ, as the gateway to discover the particular characteristics of the Loire estuary landscape. As part of this exhibition programme, Gilles Clément was invited to design the three public gardens on top of the submarine base (Fig. 03).

The Roof of the Concrete Submarine Base

The submarine base is impressive, first and foremost, because of its enormous volume: 126 m long, 300 m wide, and 17 m high. On the roof, the Germans protected the submarine base from air-attacks with a thick layer of concrete reinforcement. The structure of this reinforcement consists of three layers: The base comprises 2 metres of concrete filled with a grid of V-shaped concrete beams. On top of that, concrete walls measuring 2m high and 1.5m thick were added to support the last layer - an array of concrete beams that create a hollow space that serves as a buffer to bomb explosions.

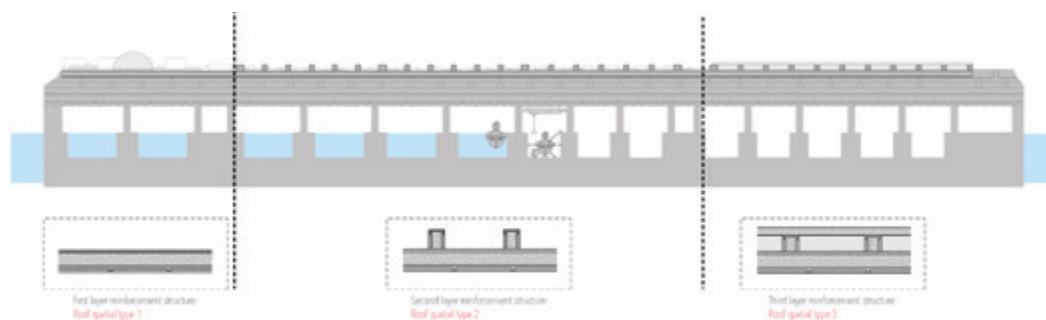


FIGURE 4 The section of the submarine base. The reinforcement layer yields a thick volume on top of the existing enormous submarine base. Three stages of construction divide the roof into three zones, each with its own spatial characteristics. (Drawing by Sitong Luo, 2019).

The German troops retreated from the city before they had completed the reinforcement of the roof, leaving three zones with different layers of the reinforcement structure (Fig. 04). The micro-climate on the roof is

extremely dry: two-thirds of the surface is fully exposed to sunlight, and the hard surface exacerbates the sun radiation. The sun radiation and lack of wind protection further accelerate the evaporation of rainwater. The floor is fully covered by concrete, which makes it very hard for seeds to germinate. The three gardens sit separately in three morphological zones, and Clément's design exploits the unique spatial characteristics of each. The Garden of Labels is established in the zone of the first reinforcement layer, where a sunken pit (12 m wide and 51m long) is situated on the concrete foundation. The Garden of Stonecrops and Grasses is placed in the zone of the second reinforcement layer and consists of ten planting beds. Each single planting bed is positioned between the existing parallel concrete walls. The Garden of Aspen Woods is placed where the three layers of reinforcement have been completely constructed. 109 aspen trees within a rectangular concrete planting box are spread in the hollow chambers of the reinforcement structure.

Recondition the Habitat for Wildness

To establish new habitation on the dry concrete roof, the starting point of the design is not selecting species but responding to the micro-climate on the roof.

In the Garden of Stonecrops and Grasses, the design makes the most of the shade provided by the concrete walls by filling in the gaps with planting beds (Fig. 05). The planting beds are raised 20cm, offering a thin layer of soil for the plants. The substance consists of rubble stones and sand, which subtly diversifies the habitat condition. Species that are able to adapt to the dry, hostile environment were planted in between the coarse concrete wall; these species are mainly from the family of Sedum and Gramineae, such as, for example, *Sedum spectabile*, *Euphorbia characias*, *Stipa tenuifolia*, and *Melica ciliata*. Additionally, rock plants such as *Armeria maritima* and *Dianthus deltoides* were also part of the planting scheme.

The gateway running through the concrete wall is filled with a narrow canal of water, which, to some extent, provides extra moisture to the planting beds (Fig. 06). A foot bridge made of galvanised steel and aluminium perches on top of the concrete walls, providing shade for the planting beds. This benefit of shade is discussed in the report of gardener Mathias Petitjean after the first year of the garden's construction: "The plantations which are located in the shadow of the footbridge running parallel to the walls are all in better condition than their neighbors"³ (Petitjean, 2010).



FIGURE 5 The Garden of Stonecrops. Ten planting beds were added in-between the concrete walls, which host a group of selected species that are able to adapt the dry, hostile climate on the roof (Photograph by Martin Argyroglo).



FIGURE 6 The narrow canal, running through the gaps of the concrete walls, poses another sight line that perpendicular to the sight line of the planting beds. (Photograph by Sebastiaan Kaal).

n du jardin



Exemple de positionnement de roches dans le jardin. Les blocs sont placés par grille de 3,3 ou 7.

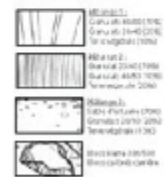


FIGURE 7 The Garden of Labels. The design experiments with a minimal intervention: a layer of substance, shaped into several slopes, was added to the site. The substratum is diversified with five ingredients of soil (Drawing by Gilles Clément).

The Garden of Labels has a simple set-up, only a thin layer of substance was added to the sunken area. Unlike the Garden of Stonecrops and Grasses, the Garden of Labels leaves the space open to host natural agencies. What is essential in its design is a deliberate arrangement of terrain that augments the ecological diversity. The newly added soil is shaped into several mounds, creating slopes that project shade onto the surface while serving as a cushion that stores rainwater. Apart from shaping the terrain, the design further differentiates the substrate into four types of gradients: clay soil, sandy soil, gravels, and large-grained pebble stones (Fig. 07). No plant species are introduced to the site. The idea is to allow seeds, brought by the wind, animals, or humans, to spontaneously occupy and grow out of the ground prepared by the design. From 2010 to 2015, twice a year, students of the Jules Rieffel Agricultural High School come to identify new species, marking them with labels. Over a 5-year period, 163 plant species were identified on the site. At the early stage, most species were annual or perennial herbaceous plants, while in the later stage, several woody species appeared. The plant coverage of the site increased, with a significant growth of *Senecio inaequidens*: a species from Southern Africa, very often found in artificially disturbed site such as riverbanks and rocky slopes, but in recent years an invasive species in central Europe (Lachmuth,2011).

A Theatre of Evolving Wildness

The primary consideration of the design focuses on the ecological requirements. Nevertheless, the design is not merely a functional response, the artistic expression of the garden plays another essential role. By dramatising the visitor's perception of the wild flora in the garden, the design creates a stage for wild nature, capturing its uniqueness and dynamic succession.

In the Garden of Stonecrops and Grasses, an extended sight line is shaped by the narrow canal that runs through the gateway of concrete walls. Perpendicular to this, another sightline through the gap in the concrete wall is enhanced by filling the gap with the planting bed. As the planting bed fully occupies the intermediate space, it concentrates the contrast between two materials from the existing and the new: the roughness of the eroded concrete, and the lively floristic species. The Gramineae and Sedum species embellish each other's texture, where the Gramineae offers a weaving, fragile texture, the Sedum is short and sculptural, demonstrated by its unique fleshy leaves. The parallel concrete wall frames the observation of this miniature world. The experience of the garden is orchestrated by the constant interplay of perspectives and tactile impressions, between harsh, solid concrete, and the lively, colourful planting (Fig. 08).



FIGURE 8 The material contrast in the Garden of Stonecrops and Grasses. The thriving plants enhance the experience of the original concrete structure of the roof. (Photograph by Sitong Luo, 2018).



FIGURE 9 Twice a year, the newly emerged species is identified with labels. The white labels, scattered across the whole site, elicit a sense of curiosity from the visitors (Photograph from Le Voyage à Nantes).

In the Garden of Labels, the design emphasises a winding path in the central line of the sunken pit, to resemble a transitory landscape that is changing and evolving. Compared to the Garden of Stonecrops and Grasses, where the planting palette is carefully selected and composed, the Garden of Labels is hardly perceived of as an artificial intervention. Instead, it comes across as an overgrown site with a cluster of wild herbaceous plants. However, the tactic of labelling the new species each year discloses the narrative of the garden. The layout of countless tiny white labels, amongst the rest of the unfamiliar wildness, arouses an intriguing elegance and stimulates the visitors who may just be passing by this almost invisible sunken pit (Fig. 09).

The Garden, the Submarine Base and Saint-Nazaire's Metropolitan Landscape.

Surrounding the submarine base stands a recent urban regeneration programme in which most spaces are scripted with a commercial programme including retail, a supermarket, restaurants, and a cinema. However, on top of the roof, one discovers the wild gardens full of surprising encounters and witnesses a choreography that plays with constantly shifting directions and sightlines, and the contrast between wild flora and the deteriorated concrete (Fig. 10).

The gardens, hosting spontaneous wildness on the roof of the submarine base, have a hidden character. You can only find them once you step on top of the roof. As a space that is detached from the rest of the city, how do those gardens connect to the metropolitan landscape of Saint-Nazaire?

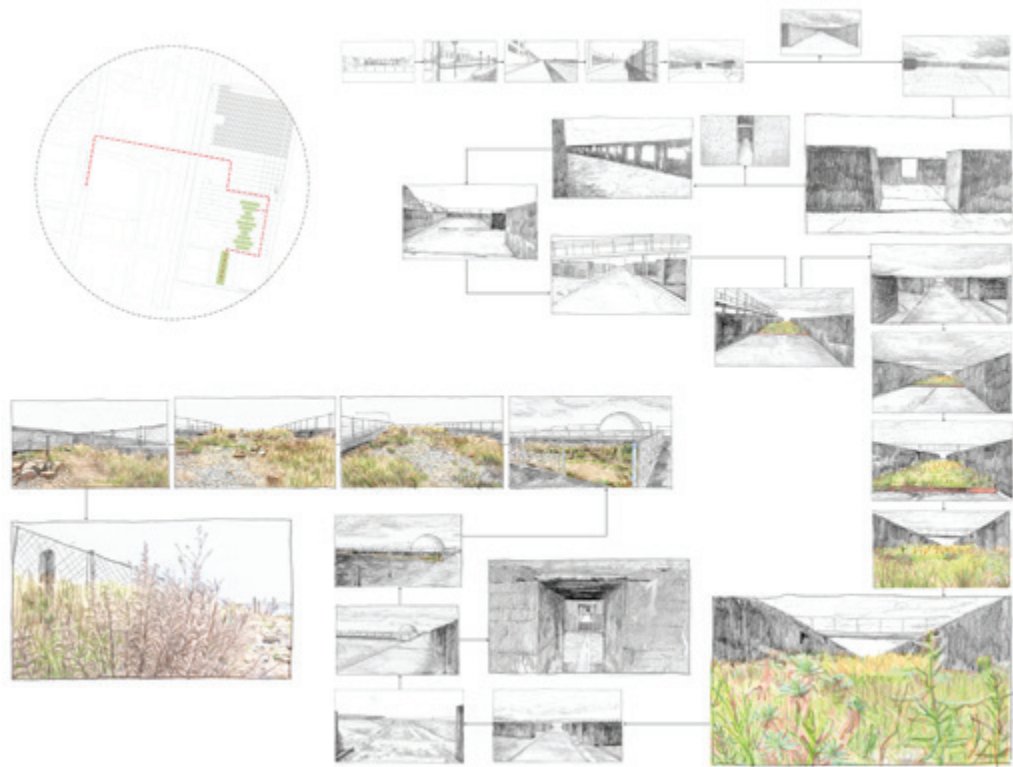


FIGURE 10 Landing the garden from outside: a sequential experience with constant shifts of visual directions, movement, and material contracts. (Drawing by Sitong Luo, 2019).

First and foremost, the link is made through the interstice. The neglect of the submarine base, making it abandoned and becoming the backside of the city, was tightly connected with the development of metropolitan region between Saint-Nazaire and Nantes. It is the prioritisation of the train station – a network connection with the larger region, including Nantes – that shifted the urban centre away from the harbour and the submarine base. Therefore, the conditions on the roof, allowing the emergence of wildness, can be regarded as a consequence of this metropolitan development. At the same time, it is also the network between Saint-Nazaire and Nantes that provided the opportunity for the establishment of this garden. The garden is one of the artistic installations of the ‘Estuary’ biennale. The event is launched by the touristic office of Nantes, to promote the development of metropolitan region. In fact, the majority of visitors to the garden are from Nantes rather than Saint-Nazaire. In this view, the garden is more related to the metropolitan landscape than to the town itself.

De Wit suggested that interstitial gardens may give an expression to the characteristics of the place in the placeless metropolitan landscape. This perspective also applies to the Gardens of the Third Landscape. The gardens re-introduce the submarine base as a meaningful place through an architectonic design intervention, highlighting the existing structure of the roof. The design represents the hidden narratives of the site through knitting the experience of the labyrinthine-like defence structure on the submarine’s roof together with the backdrop of the city and the harbour, and with the encounter of newly established wildness. In this way, the intertwined stories of the submarine base, the harbour, Saint-Nazaire and its estuary landscape unfold to visitors. The artistic expression of the garden reveals to its visitors the beauty and performance of wildness, of nature’s spontaneity and dynamic. A new relationship between human and nature can be established here, one that is based on understanding nature as more than a resource for human use, and as something all-encompassing, to which humankind is intricately connected. Here, the gardens’ form is both the result of natural growth as well as the symbolic meaning plotted by the designer.

Leaving the site's future profile to be defined by the occupation of wildness, the gardens in this way present themselves as counterpoints to the functional operation of metropolitan landscape. The gardens introduce a process that doesn't follow the strict regulations imposed by humans elsewhere in the metropolitan landscape. They are places of indeterminacy, where visitors encounter the nature's tempo and circulation: the seasonal changes of flourish and decay, and the process that pioneer species will be gradually replaced, ensuring the garden's profile never stays the same.

Conclusion: Nurturing Places of Wildness inside Metropolitan Landscape

The metropolitan landscape's dual character— spatial fragmentation and functionally-driven processes — give rise to the existence of the interstitial spaces within it. These spaces are niches in which alternative ecological processes take place, allowing certain species, typically excluded from the human-controlled urban environment, to settle and manifest. Interstitial wildness is a potential counterpoint of the metropolitan landscape, hosting the practices of wild ecologies.

To fully appreciate the interstitial wildness, gardens can be introduced as landscape architectonic interventions. Gardens with an open-ended design approach, responding and adjusting to natural processes, might intervene in leftover spaces without losing their essential quality of indeterminacy. Through nurturing wildness, the garden elicits the appreciation of nature, of its wholeness and diversity. The proximity and contradiction between the garden and the surrounding metropolitan landscape makes the garden a place of reflection, a place in which to re-examine the heterogeneity of the metropolitan landscape and to embrace the uncertainties it holds within.

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Notes

1. Translated from Gilles Clément's Manifeste du Tiers Paysage [*Manifesto of the Third Landscape*]. The original text: "Ces marges assemblent une diversité biologique qui n'est pas à ce jour repertoriée comme richesse".
2. Translated from Mathias Petitjean's report in French. See the original text: "Les plantations qui sont situées à l'ombre de la passerelle qui court parallèlement au murs sont toutes en meilleur état que leurs voisines".
3. Extracted and translated from Gilles Clément's writing on the garden in motion (le Jardin en Mouvement) on his personal website. See the original text: "Des fleurs venant à germer dans un passage mettent le jardinier devant le choix de savoir s'il veut conserver le passage ou conserver les fleurs. Le Jardin en Mouvement préconise de conserver les espèces ayant décidé du choix de leur emplacement".

Absorbed in the Limestone Garden

Registering the Historic Island Metropolis Valletta

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Abstract

The term *landscape metropolis* and its associated practice of reading the city through the terminology and 'lens' of the landscape rather than the normal conventions of urban studies is generally applied to the contemporary city and its expansion beyond the historic centre. Yet, this approach also chimes with the peculiarities of the historic island city and the close relationship such cities have with the restricted, liminal ground on which they are founded. This paper explores the hypothesis that an island city can be understood as a metropolitan landscape as a consequence of peculiarities of geography, ecology, culture, place, and resiliency. By focusing on one such city, Valletta, a heightened case, in which a 16th Century metropolis was founded as Renaissance 'ideal', the paper examines the reciprocity between this projected 'ideal' and the actual landscape where the metropolis is fused and, indeed, confused with the landscape so that the spatial coherence between city and landscape determines the nature of the metropolis.

Keywords

metropolitan landscape, ideal city, island, garden, place, Valletta

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Introduction

“Geographic isolation favors endemism, that is to say, the originality of creatures, their uniqueness in the universe. It also favors the originality of ideas. For people who have the Southern Cross in the position of the Great Bear as their celestial point of reference, it is normal that their way of seeing the world, and consequently of representing it, assumes different forms” (Clément, 2015 p.55).

On an island, there is a deep, intrinsic relationship between human settlement and the landscape upon which it is settled. This is primarily due to the limitations of ground, resource, and a heightened climatic condition. The establishment of a completely new, ‘originary’, metropolis on an island makes this relationship particularly acute. The ‘ideal’ is altered by the resistance of the landscape; its spatial limitations and topography compress and deepen the imposition of its grain. Geographical isolation necessitates material invention and efficiency as an inevitable response to limitations of resource. This invariably forms a direct connection between the quarried land below and the constructed city above. Climatic exposure and an insular ecology require the city to constantly engage with landscape, to collect and hold water, to channel the sea breezes, to form depth and shadow, to create habitable areas and to tailor environments.

Geographic isolation favours expediency, a practical form of invention that deviates from conventional norms. One has to work with what is available and thus the limited land itself. It is this direct engagement with the landscape and the adaptation of its materials and processes that make it ‘endemic’, strange, and original. Within an age of globalisation where the relationship between material and its mineral source has been blurred through the speed and ease of transportation there is much to learn here. Within the placeless drift of the contemporary landscape metropolis, the sensibility of the historic island city offers an alternative anchorage, an endemism, and a material grounding that registers directly with the particularities of ‘place’.



FIGURE 1 The Garden of the Casa Rocca Piccola whose history reaches back to the founding of 16th Century island city of Valletta.

Methodology

Through textual, archival, cartographic research and field work, the paper examines a particular exemplar island city, the Maltese capital of Valletta, a metropolis of the 16th Century. In his essay *Desert Islands*, Gilles Deleuze affirms the philosophical power of the island myth through a critique of imagined islands developed within the geological narrative of island origins (Deleuze, 2004, p.9). This paper turns this wider philosophical gaze back to discuss a real island and its inhabitation and cultivation through the establishment of a new city. Deleuze's use of geomorphic terminology offers a unique and revelatory way of reading the city and, by extension, the larger phenomenon of the landscape metropolis where not only the terms but also the very fabric of urban and landscape become re-arranged acknowledging that 'the spatial coherence between city and landscape determines the nature of the metropolis, which may be considered as a city that has gradually opened up to the landscape, on all scales and in different forms over a long period of time' (de Wit, 2014b, p.604).

As Gulliver discovered, on islands, scales operate in unusual ways. Its strategic position may afford it an impact at an oceanic scale. Its climatic exposure and scarcity of fresh water may inform an ecological strategy that operates equally at the scales of the agricultural field and the domestic garden. The analysis of an island city and its relationship to the landscape upon which it is founded needs to be agile, to operate fluidly across scales. This paper reflects this as a structural methodology and employs, as a scaling device, a parallel reading of a unique palazzo garden, that of the Casa Rocca Piccola, set deep in the urban tissue of Valletta and whose history reaches back to its founding (Fig. 1). The garden will be seen as a *pars pro toto* for the city, allowing a reading that oscillates between the garden, the metropolis, the island and their associated themes of scale, geomorphology, enclosure, and origin.

An Island Metropolis

From above, the Maltese capital of Valletta is seen an island commanding a complex body of water formed by the peninsulas of Vittoriosa, Senglea, and Cospicua to the south-east and the bay of Sliema and island of Manoel to the north-west (Fig. 2). These waters have provided safe haven since the age of the Phoenician Empire and imbued the island with a strategic status far greater than its size would otherwise merit. The city is tightly compacted within a massive enceinte of walls and ditches. They are precise and hinged articulations informed by the geometric logic of fortification from an early age of heavy ballistics. The aerial view registers the city as a singular landmass striated with a carefully calibrated grid of deep furrows.

Valletta emerged from the upheaval of conflict made manifest in the Great Ottoman Siege of 1555. The Order of St. John of Jerusalem commissioned the Italian architect, military engineer and student of Michelangelo, Francesco Laparelli da Cortina (1521-1570), to design an impregnable fortress on the Sciberras Peninsula. Valletta, designed above all to withstand further attack, was to become the new home of the Order following their expulsion from Rhodes. Conceived as a discrete urban artefact on an uninhabited peninsula, Valletta is considered to be one of the few examples of the Renaissance 'ideal' realised in its entirety. In this, it reflects the optimistic spirit of the century that produced Thomas Moore's 1516 island vision of *Utopia*. However, when a preconceived order is projected onto an island's surface, the manifestation of its 'ideal' is inevitably altered by the limited resources with which it has to build and sustain itself. It is affected by the pressures of strategic status bestowed upon it by the particularities of geography and is inflected by a culture where sensorial organisation is attuned equally to the sea as it is to the land.

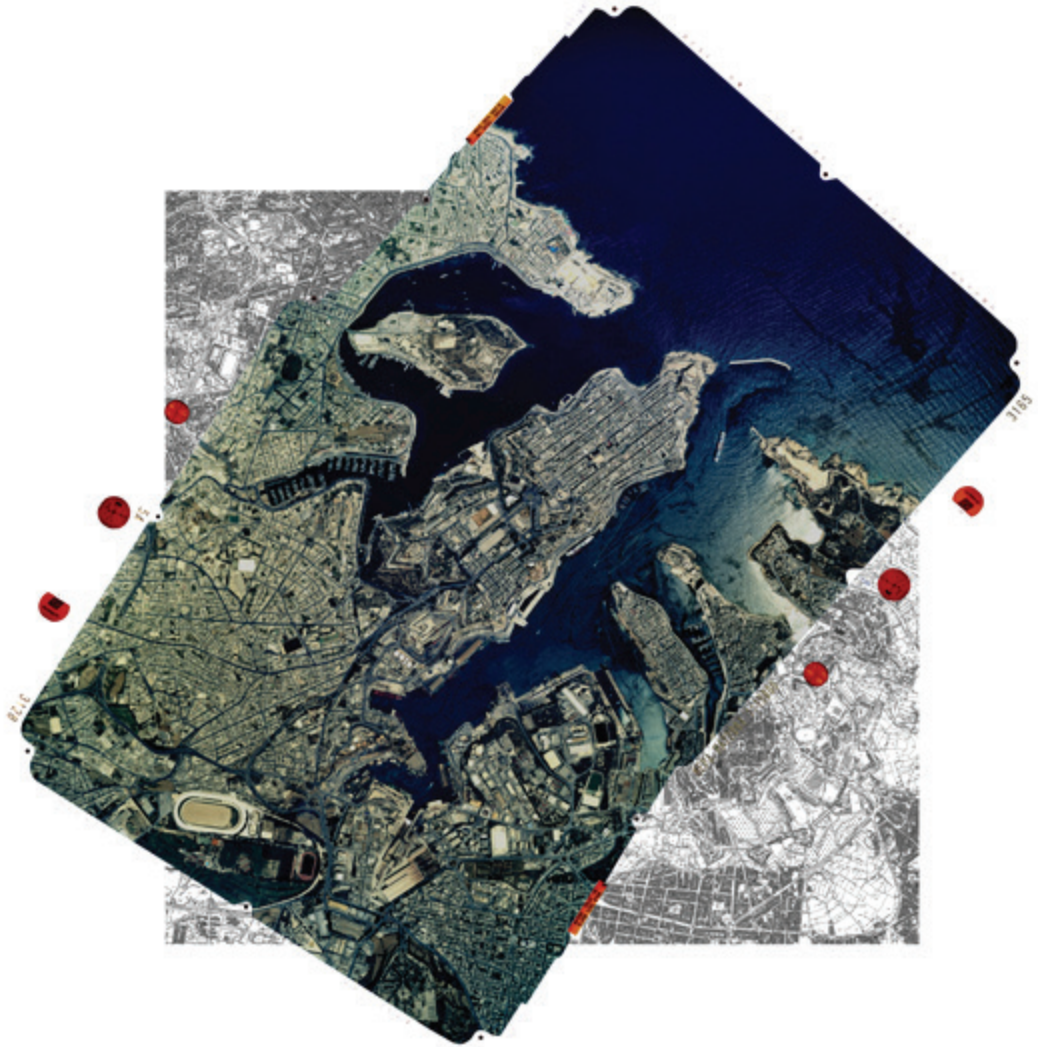


FIGURE 2 The island figure of Valletta, a metropolis of its time by dint of its density, a condition of enclosure by wall and sea required by military necessity, and its expansive influence reaching far beyond its remote position within the Mediterranean.

An Inflected Ideal

It is this confined singularity, this original *ideal*, that identifies the city so immediately as its own distinct form of island. Valletta was not only built on the rock but also directly of its matter, from limestone quarried directly from below, forming a material continuum. Its massive defensive form registers its position in the world and, as a place of harbour and refuge, radiates its status through its relationship to the sea. The cultural threads of the city repeatedly lace themselves back to a singular point of origin, the Knights Hospitaller and the founding of their capital. But they have also absorbed the tropes of other worlds drifted in through colonisation, trade, or the proud traditions of hospitality.

Valletta is representative of a metropolis of its time both by dint of its density, a condition of enclosure by wall and sea required by military necessity, and its expansive influence reaching far beyond its remote position within the Mediterranean into the depths of late Renaissance Europe and to the coasts of North Africa.

The terms *ideal city* and *metropolis* are often considered as being placeless. The first, a perfect form untainted by context and the second, operating beyond context through a network of connections. However, it is their engagement with the specificity of ground and culture that is most revealing (de Wit, 2014a, p.15). The etymology of Utopia suggests both 'no-place' and 'good place' (MacKay, 2016, p.59) and it is the goodness of the place, the unique and defining characteristics and peculiarities of the land, that resists and affects the superimposition of an ideal form and therefore stops the placeless metropolis from really ever being fully realised.



FIGURE 3 A version of Matteo Perez d'Aleccio's 1582 cartographic projection of a nascent Valletta. 'Case de Sr. Don Pietro don Rocca' – The Casa Rocca Piccola is highlighted. (National Library of Malta).

The Anomaly of a Garden

On completion of the outer defences, Laparelli prescribed a strict set of rules, a codex, to determine the order and singular grandeur of the city. To ensure continuity of street lines, the required density on limited land and in response to the scarcity of fresh water on an island devoid of rivers, the codex clearly states that the frivolity of private gardens was not to be a feature of this new metropolis (de Giorgio, 1985, p.115). Early maps of the city identify an anomaly, a deviation from Laparelli's protocols, in a particular property with the nomenclature, 'la casa con giardino', the house with a garden. The first cartographic projection of the city fully formed was drawn by Matteo Perez d'Aleccio in 1582 (Fig. 3). It identifies this property as 'Case de Sr. Don Pietro don Rocca', the palazzo of the admiral of the Order of St John in the Langue of Italy (Gando, 2003, p541). The Casa Rocca Piccola exits today as the ancestral home of the de Piro family, itself a family with deep

Maltese lineage. Although much diminished from its original size, the enclosed garden remains and around it perambulates the enfilade of the Casa's interior, each room rich with a dense collections of curiosities. As an exception to the rule, as something 'particular', the garden is in itself a curiosity, a unique specimen that offers an understanding of the landscape metropolis beyond its enclosure.

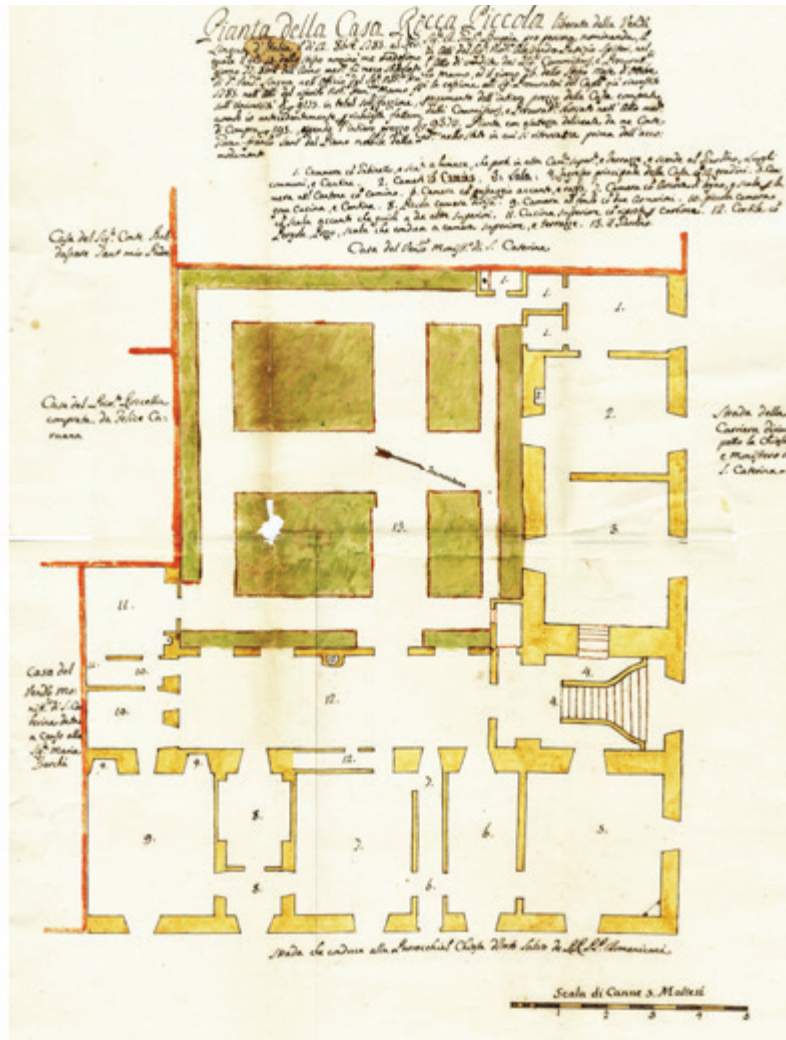


FIGURE 4 Plan of the piano nobile of the Casa Rocca Piccola from 1785 showing the full extent of the original garden. (archive of the Casa Rocca Piccola).

The garden of the Casa Rocca Piccola has been tilled, compressed and reimagined numerous times over its 400-year history. Plans held in the Casa's archive from 1785 show a portion of the eastern edge of the garden being set aside for a new, more generous stairway to connect the street level cantine with the enfilade of the piano nobile (Fig. 4). To form a summer dining room, a twentieth century extension further diminished the garden. Each generation, each custodian, has left their mark. These registrations heighten the sense of the calibration so that it operates as a form of core sample, drawn through the island city revealing evidence of its colonisation, its climatic peculiarities, its underlying topography, its telluric substance, porosity, and point of origin. The enclosed garden, separated from the city by the inhabited walls of the palazzo 'gathers the landscape around it'. As an anomaly within an ideal it helps to 'understand the landscape it denies, explain the world that it excludes' (Aben & de Wit, 2001, p.10).



FIGURE 5 Entrance to garden from below. From St Dominic Street (left and centre) and on the dogleg of the main stair from Republic Street (right).

An Island of Solid Sea

The garden is entered from below (Fig. 5). We emerge onto its surface. There is something aquatic, submarine, about the sequential journey from street through palatial hall and stair on to its limestone terrace. Much of this relates to the passage of Mediterranean light as it is dappled through the citrus canopy of the garden and through the window above the upper door. Being arched at both head and cill, the window channels the light as though through an elongated porthole – a form replicated by the two later murals that address the stair. The passage is cool and white, the surfaces polished and reflective. The garden is entered from the dogleg of the stair as though on a turning tide caught between the levels of the house (Fig. 6). This sense of separation, of the garden finding its own level within the formal, highly choreographed domestic arrangement of the palazzo, is heightened by the added presence of the neighbouring eighteenth century staircase and the fluid, Art Nouveau forms of the summer dining room. Because of these new elements, the garden is no longer directly revealed to the original enfilade through deep set and shuttered windows. Instead, it is mediated through spaces that receive light through more expansive, serous membranes of glass. These spaces, with their white, reflective interiors, hold the light, delaying its passage to the house as though through the surface of the sea, *'at once opaque and transparent, meaningful and meaningless, real and unreal'* (Arets, 1993, p.35).

The party walls to the south and west that complete the enclosure of the garden are marked with tidelines of weather and growth, registering both climate and occupancy (Fig.6). The Globigerina limestone is at times pitted and honeycombed as its oxidised surface has been worn away by the elements to reveal a softer, more porous, coral-like interior. The heights of vines, clematis, and their remains act as a temporal register. The sense of being cast out of water and onto the surface of an island is, perhaps unnecessarily, heightened by the current presence, alongside two terrapins, of the classic zoomorphic image of island colonisation, of taking possession - the parrot (Carter, 2006, p.118) (Fig. 7).



FIGURE 6 Contemporary plan and section of the Casa Rocca Piccola. The garden is caught between the levels of the house as the topography of the city falls down to the sea. The three carved cisterns below the garden are indicated.



FIGURE 7 The vine covered party walls to the south and west of the garden. The zoomorphic image of island colonisation, of taking possession, the parrot.



FIGURE 8 Franka limestone, the fourth layer of the island's geologic structure, being cut from the Siggiewi quarry. Franka is the primary material utilised in the construction of Valletta.

A Material Continuum

The Maltese archipelago was formed through the uplift of sedimentary rocks from the relatively shallow continental platform between Sicily and North Africa. It arose from the sea and is composed almost entirely of limestone formed from the skeletal fragments of marine organisms. Its geology is composed of five layers of limestone and, as the islands' sole resource, it has been frugally applied to the cultivation of its landscapes and the construction of its cities. The first, the Upper Coralline (*qawwi ta' fuq*), is highly porous, fissile, and used only for the drystone walls, which hold the soil of the country's agriculture, or ground to lime. The second layer of Greensand is similarly poor and crumbles. It is pounded down to form a bedding for construction or an infill between walls. The third and fourth layers are both Globigerina limestone. The upper, blue/grey stone (*tafal*) is soft, weathers badly and is only used for rough work and infill. It is the fourth layer, of pale-yellow stone (*franka*) that is the most prized and is easily quarried with wedges and dressed with broad-blade axes (Fig. 8). The final layer of Lower Coralline (*qawwi ta' isfel* or *Donqor*) has similar properties to the top layer but is harder, crystalline, and non-porous, and therefore used for lower parts of walls, sills, thresholds, and kerbstones. Valletta is almost singularly constructed from *franka* and it is this material that renders the city with the distinctive buttery glow that becomes honey-like in the evening sun. The treeless nature of the island meant that timber, other than through the occasional re-appropriation of a ship's mast, was rarely used in construction. *Franka*, being easily cut when first out of the ground (it later hardens through exposure to oxygen), was utilised in ways normally associated with carpentry. Floors and roofs were formed from joist-like slabs resting on vaults (Hughes, 1956 p.193; Zammit, 2004, p.12; Tilley, 2004, p.94). The fabric of the city is that of the island and, by extension, was once that of the sea.



FIGURE 9 Manuscript map from 1558 attributed to Bartolomeo Genga. The island itself is drawn with an oceanic quality with the future metropolis of Valletta arising from the waters. Detail below the walls of the future metropolis mirroring the earlier Gardens of Marsa (lower right). (collection of Albert Gando).



FIGURE 10 Antonio Lafreri's 1566 depiction of a fortified but, as of yet, empty Valletta - a landscape enclosed. (Collection of the Casa Rocca Piccola).

Island and Enclosure

A manuscript map from 1558, and ascribed to Laparelli's forerunner, Bartolomeo Genga, depicts an early vision of a fortress city on Mount Sciberras (Gando, 2003, p.476) (Fig. 9). It is more extensive than Laparelli's eventual city, occupying the whole of the peninsula. Drawn in brown ink on paper, it emphasises the scale and dominance that the planned metropolis would exert upon both the sea and the extended landscape of the island. The island itself is described with a sea-like quality. The undulant hills of its interior, the distinctive landscape of the Maltese mainland and a consequence of the malleability of the tafal, are rendered as a succession of waves. Seemingly barren and devoid of placenames, the only sign of occupancy is the occasional vessel of a church or an outlook tower riding a crest. The planned city is conceived as an island. It is as though by inhabiting a deserted peninsular it had '*pushed the desert outside*' (Deleuze, 2004, p.11). Genga's map reveals the city to be empty, an 'ideal' not yet formed. The surface of its interior is marked only by the proclamation, *La Citta Nuova* and, knowingly centered around the summit of Mount Sciberras, the cardinal points of the Mediterranean winds – T (*Tramonte*), L (*Levante*), O (*Ostro*), P (*Ponente*).

Curiously, towards the lower edge of the map, seemingly adrift on the topographic waves and more dominant than any other form of settlement, is a walled enclosure protected by three gatehouse towers. It is marked as *Gardino* [sic] and represents the enclosure of the cultivated gardens of Marsa, a recurrent feature of maps of this period, also appearing in Matteo Perez d'Aleccio's 16th Century frescos of the Siege of Malta that adorn the Palace of the Grand Masters. It is tempting to read this as though the walled garden is being offered up as an inspirational prompt to a nascent metropolis.

An Island of Enclosed Gardens

It was the Maltese tradition for houses to look inwards, onto a courtyard, with limited openings on the external façade. This arrangement enabled the tempering of the frigid winter winds of the *tramontana* and, in the spring and autumn, the humidity of the *sirocco*. In the summer, the mediating effects of the courtyard protected the house's interior from the direct glare of the sun, keeping it cool (Hughes, 1956, p.192). The tradition continues into the city and was further encouraged by Laparelli's codex and its concern for continuity of the street and block. Consequently, within the enceinte, the urban landscape feels equally defensive. The enclosed garden frames the sky and mediates the climate. The passage into the garden of the Casa Rocca Piccola reveals both its elevation from the street and the thickness of its envelope. Surely it is more than a coincidence that its name suggests a small fortress?

The Enclosure of Landscape

As with the Genga map, early cartographic representations of Laparelli's city depict it as empty, cleared ground awaiting ordered settlement. One such map hangs towards the end of the enfilade of the palazzo, prior to the elevated view of the garden through the summer dining room. It is from 1566 and is the second version of the engraver and cartographer Antonio Lafreri's depiction of the fortress walls and nine cavaliers of the emerging city (Fig. 10). It was drawn up for Laparelli to help enlist support for his vision from the Pope, the King of Spain and various European courts.

Lafreri's original version shows the walls enveloping a completely empty interior. This second version saw four set pieces added to the central void: *Santa Maria della vittoria*, the first church, built on the ceremonial site of the city's foundation; *Alloggiamento sel Gran Maestro*, the proposed palace of the Grand Master; *qui si è trovato una fonte di aqua dolce*, a source of fresh water and *Darsena per x galee*, a dock for ten ships (Gando, 2003, p.363). Accompanying the addition of church, palace, well, and harbour are two new pieces of text. One identifies the *Fosso*, the ditch that separates the city from the remainder of the peninsular and *Reuelino*, the original triangulated fortification and outworks of St. Elmo on the headland. It therefore introduces the line of separation that defines the city as an island and highlighted its point of 'origin', the moment of colonisation. Two parallel dotted lines link these features as the first indication of a main street. The street is now known as Republic Street, and it is from this street that one enters the garden of the Casa Rocca Piccola. The enclosure of the landscape becomes miniaturised to the enclosure of garden.

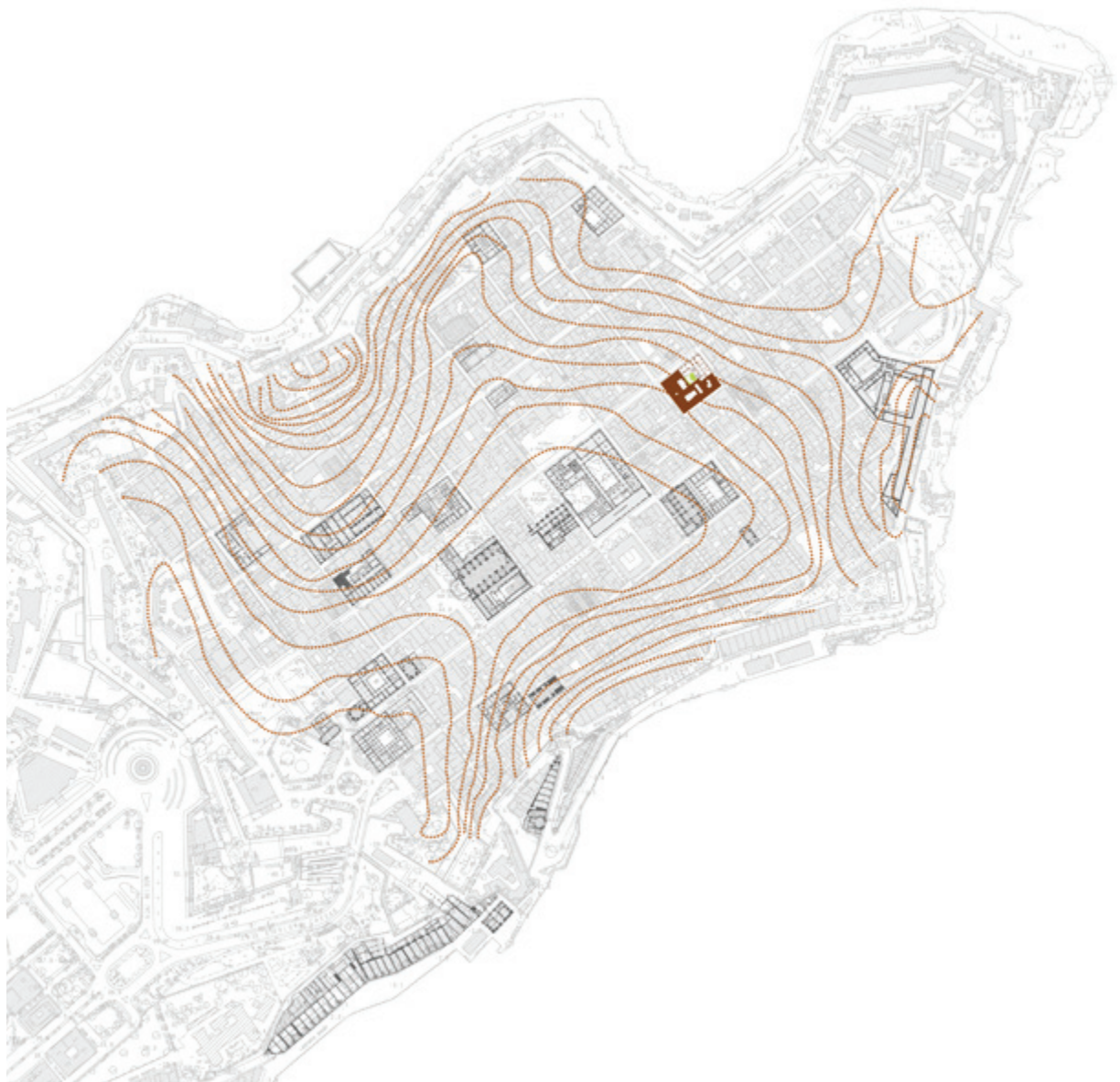


FIGURE 11 Contours reveal the true lie of the land that resisted the 'ideal' imposition of a metropolis. From a height of 56m the Sciberras Plateau drops to the sea through an array of five valleys. The Casa Rocca Piccola (indicated) is caught midpoint on the most northerly flank.

The Resistance of the Land

Fearing further attack, Laparelli decreed that no work on buildings should commence until the fortified walls and bastions were complete (Hughes, 1976, p.1). Lafreri's drawing suggests a condition in which the walls are enclosing a tabula rasa, a mute plain on which a city could be simply formulated and contained - and perhaps indeed this is how the city was initially conceived. The reality on the ground, however, was far more corporeal. The positioning of the church and the palace was intelligent, at a height of 56m between two natural harbours, this plateau of land, Mount Sciberras, commanded the peninsula. A saddle of land known as Camerata plateau connected this summit to the headland of Fort St. Elmo. An array of five valleys indent each flank to form a complex topographic body of limestone. Of these valleys, the one falling west, from the proposed site of the church and palace, was the most pronounced and it was at its foot that Laparelli proposed to carve a harbour (Fig. 11). After abortive attempts to work with the folds of the land, Laparelli rationalised his vision to propose nine streets with a strict hierarchy of varying width to run the length of the city and twelve to cross the breadth. This formed a rectangular grid that frayed as it approached the enceinte. To implement this, he proposed to similarly rationalise the land, to lay it flat. But it resisted. Attempts to cut the higher levels of rock and to use the acquired stones to form backfilled retaining walls on the lower ground were soon abandoned due to the extreme cost and effort involved (Hughes, 1956, p.28). Consequently, the streets of the realised city repeatedly drop to form deep canyons or rise up from the sea in great stepped flights (Fig. 12). Valletta has evolved out of the strange interplay between the orthogonal, humanist order of the grid and the terrene, telluric lie of the land. One is constantly being read against the other. It is this interplay that imbues the city with deep qualities of landscape for, as Lyotard suggests, *'there would appear to be a landscape whenever the mind is transported from one sensorial matter to another, but retains the sensorial organisation appropriate to the first, or at least a memory of it'* (Lyotard, 1985, p.212).



FIGURE 12 The streets of the realised city repeatedly drop to form deep canyons (left) or rise up from the sea in great stepped flights (right).



FIGURE 13 The piano nobile of the Casa Rocca Piccola processes around the citrus canopy of the garden.



FIGURE 14 The deep garden (left) recalls the appropriation of Malta's disused limestone quarries as citrus groves (right). Both benefit from the tailored environment of this depth within the landscape.

The Garden in a Landscape of Depth

The garden of the Casa Rocca Piccola is lodged between the rationality of the ideal city and the pulse of the land. The reason the garden seems elevated, and to be entered from below, is because the palazzo is caught in the descent of the one of the valleys that fall from saddle of the Camerata plateau towards the western harbour. As a consequence, the properties rising the slopes to the east and the south tower over the garden with reinforced height, emphasising the sense of enclosure. The garden is set deep into the landscape of the city with the atmospheric consequences of such a state – it is cool, reverberant, still. The sun enters it in shafts or via the reflected honey glow of the limestone walls. The garden is dislocated; it operates with a different logic to the palazzo, creating a sense of estrangement and displacement. The clerestory of the *cantine* frames earthy roots and underbrush whilst the *piano nobile* processes around a constellation of citrus orbs (Fig. 13).

Due to its remote exposure, the landscape of the Maltese archipelago has become cultivated through acts of enclosure. Genga's rolling hills were, in reality, overwritten with a seine of drystone walls that protected the thin layer of soil from dispersal by the winds of the Mediterranean. Once exhausted, the quarries that fed these walls were themselves utilised as ideal environments for citrus groves (Fig. 14). Even the limestone slabs of the littoral zones were carved to form a grid of pans from which to harvest salt from the sea. The walls protected but they also held the landscape as a multitude of cultivated islands. Landscape and city have merged into a metropolitan network of limestone threads. Just as the crude craft of fishing nets became cultured into the fine lace for which the islands were famed, so the rough walls of the fields became refined to form a Renaissance 'ideal'. Valletta, seen from within, is a deep city, seemingly routed from the limestone body of the peninsula. The deep narrow ravines of worked ashlar and unsuppressed contour have tailored the harshness of the climate beyond its walls into civilised channels of shadow and sea breeze.



FIGURE 15 Central to the garden, the ornate narrow stair that descends to the chthonic mirroring of the three carved cisterns below (See also Fig. 6).



FIGURE 16 The blurred distinction between the naturally formed limestone of the deep outer defensive cut of the Fosso and the ashlar form of the metropolis above.

The Garden and its Chthonic Double

Central to the garden of the Casa Rocca Piccola, and guarded by two 17th Century carved lions, is a narrow stone stair that leads down into the thick limestone rock of the peninsula itself (Fig. 15). The well that is depicted on Lafreri's near empty map proved to be insufficient and of inadequate quality to sustain. As a consequence, Laparelli's codex decreed that all properties constructed within the city walls should first carve a cistern into the rock below. Each cistern was to be capable of collecting enough rainwater, channelled from the roofs and patios of the proposed property, to sustain the household throughout the year (de Giorgio, 1985, p.116). This formalised a Maltese tradition, born of necessity on islands devoid of fresh, flowing water, and made possible by the soft, malleable nature of its limestone form. The water, once collected in these cavernous bell-shaped voids, remained fresh through the cooling effects of the deep stone and the limited contact with the air ensured by its bottleneck form. The stone, once exhumed from these excavations, was then used in the construction of the house itself. If more stone was required, the public works for excavating the harbour would act as reserve. The house was therefore not only formed from the stone peninsula but also sustained by it, each house a self-sufficient island in its own right.

Empty now, the Casa Rocca Piccola has three such cisterns of varying size, voluminous caverns set deep in the rock below the garden (Fig. 6). By the end of the 17th Century, the Order of St. John had connected Valletta to the reliable springs of Dingli and Rabat on the far side of the island. The fine limestone umbilical cord of the Wignacourt Aqueduct threaded through Genga's hills and sustained the city until the early 20th Century (Hughes, 1956 p.208). The dried-out wells of Valletta then became places of refuge against the bombardment that accompanied the prolonged siege of the Second World War. Predicting the horror in 1935, the di Piro family were the first to adapt a small cistern into a family shelter. As the siege unfolded, the family opened the larger wells to fellow citizens, the lesser of which could house thirty people, while the greater one took a hundred and fifty and was supplied with a portable timber altar (de Piro, 2004, p.22).

The classical formality of the stair and its descent from the garden eventually gives way to roughly hewn passageways carved directly into the stone, the tooling marks clearly visible. The route descends in an angular fashion, a strategy to dissipate the force of an explosion and thus inadvertently echoing Laparelli's ballistic geometries above. The walls become increasingly damp, as it perspires. The air develops a musty, geologic perfume. Chamber is linked to chamber and the route intertwines with much older passageways that reach far into the city. For every building above, there is a cavernous void below, a chthonic mirroring

where the typologies of chapel, palace, house, and barrack are reflected in excavated forms of crypt, cellar, well, and magazine. This direct doubling of city and landscape is most visceral at the threshold to the city where the striated face of the excavated defensive ditch of the *Fosso* bleeds into Laparelli's ashlar walls that were formed from the product of this cut (Fig. 16).

The Garden as Lens

The agitated descent choreographs a return to a point of origin. It is a movement that is analogous to both the substance of the island city and its particular cultural heritage. The Casa's collection of paintings, maps, artefacts, and documents are arranged around the garden through the procession of the enfilade. The contents are diverse, but the theme is common - a concern for lineage, the tracing of a line back to a singular point of origin - an ancestry and the founding of a metropolis. 'It is no longer the island that is created from the bowels of the earth through the liquid depths, it is humans who create the world anew from the island and on the waters' (Deleuze, 2004, p.10).



FIGURE 17 Valletta seems to have risen from the sea with the flotsam of continents caught in its grain. Minute skeletal fragments of marine organisms caught in its stonework (left), saints embedded in street corners, walls encrusted with mashrabiya (right).

As an anomalous moment within an ideal vision, the garden of the Casa Rocca Piccola opens up a vertical seam that passes through the limestone fabric of both the city and the landscape so that it becomes unified as a form of island condition in miniature. Valletta itself seems to have emerged from the sea fully formed. Tides have occasionally washed over it, left their mark. The rigidity of the city's fortified walls honeycombed and pitted, façades weathered to Baroque forms. The flotsam of continents has been caught in its grain - saints embedded in niches on street corners, walls encrusted with mashrabiya like docked vessels.

The enclosure of a garden was scaled to a metropolis which was, in itself, formed from the minute skeletal fragments of marine organisms (Fig. 17). The corporeal folds of the island distorted an ideal urban order to form a tailored climate of shadows and winds. A landscape enclosed has enabled cultivation, developed an architectural culture whose walls are formed from the wells that sustain it. The seam emerges from a point of origin deep in the compressed solid sea of the rock, *'bringing to the light of day a movement from the lowest depths'* (Deleuze, 2004, p.9).

Conclusion

The practice of reading the city through the terminology and 'lens' of the landscape rather than the normal conventions of urban studies offers a new way of understanding the historic island city and, in so doing, offers back a critique of the contemporary landscape metropolis (Van der Velde & de Wit, 2009, p.55). A focus on the particularities of 'island' provides an alternative basis for considering issues pertaining to the landscape such as geography, ecology, culture, place, and resilience (Corner, J. 2018 p.17). Here, the limitations of land and resource, together with an exaggerated exposure to climate and colonisation, have resulted in both a vulnerability and a resilience that defines the city's relationship with the land as being one of expediency and resourcefulness. In an era in which the speed and ease of transportation has severed the connection between materials and their source, these are traits that not only inspire a more considered attitude but also engage with a concern for a grounding in the particularities of place.

Valletta may be an acute case, an 'ideal' urban form projected onto a limestone island, but it is the manner in which the landscape of this island has resisted, agitated and, indeed, materialised this form that imbues the metropolis with such a distinct registration of place. The interplay of the logic of the land and that of an imposed ideal informs something new and 'endemic'. From above, with the privilege of the aerial view or the tools of the cartographic archive, this interplay may be read and analysed but it is at its most meaningful when it is experienced. From deep within the metropolitan tissue, the garden of the Casa Rocca Piccola not only offers a reading of this sensibility but also a visceral spatial engagement with it.

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Situated Practice

Gardening as a Response to Ownership and Ground in Girona

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Abstract

The ground is both the surface occupied by urban development and a physical media – soil – in which plants grow. Since housing density is a mechanism by which to maximise a site's financial yield, construction covers the real ground. Consequently, the soil is provided to residents in containers on terraces or balconies. However, the properties of natural ground and simulated ground are different, affecting gardening activity and the kind of material and spatial outcomes resulting from it, the synthesis of which is called “the viridic” by the author. Gardening has health benefits for people. Correspondingly, because different soil conditions affect gardening, this benefit's qualities are also inflected by access to and type of soil.

Using Yin's “theory building” case study model, two gardens by a landscape architect in Girona are discussed: one on a terrace in containers; the other on the natural ground in a public reserve nearby. Comparing and contrasting these gardens allows for the consideration of the relationship between soil and gardening technique. In addition, the process of abstraction of the ground implicit in site development may also be considered, as well as the implications of such a process on the way in which residents cultivate their gardens and the limitations of private gardens in contributing to local microclimatic and environmental qualities. The paper concludes by refining the model of the viridic based on soil and how soil mediates the relationship of the viridic to urban development.

Keywords

landscape architecture, gardening, urban soil, urban planning, the viridic

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Introduction

In *Overgrown: practices between landscape architecture and gardening*, I argued for a reorientation of landscape architecture away from *representation* and toward *practices* as a way of engaging with change, a source of great potential for the discipline. Articulating a “tectonic” model for plants that I called “the viridic,” I proposed that gardening practice interacts with plant biology to create a dynamic form language for landscape architecture (Raxworthy, 2018, p. 5). While I aimed to open up landscape design to plants differently, I left the relationship to the city and urbanism unarticulated, begging the question: what is the relationship between the viridic and the city, which is both its context and to which it contributes qualities? The obvious lost link is the ground, which Tomà Berlanda characterises as having a “biological, geological, and metaphorical sense as context for human thought” (Berlanda, 2014, p. 56). The ground is both the surface on which the city is built and simultaneously constitutes the literal material in which plants grow.

The ground is not abstract for the gardener; rather, it is soil, “the source of life... we build on it, and nations rise and fall on their soil,” says Richard TT Foreman (2014, p. 91). Nonetheless, Pollan notes that “soil is a mystery” because it is a “complex biological (and not just chemical) wilderness” (Pollan, 2002, p. 139). However, the soil is under-theorised since, as landscape architect Seth Denizen notes, “soil itself did not enjoy the status of a “thing” until it was empirically produced in the late 19th century... [before which time] it was conceptually identical to rock” (Denizen, 2012, p. 35). The literal, specific ground of the garden is a rich surface since “most of the physical and chemical processes on which gardeners depend occur at surfaces [including] soil particles, plant roots, and compost heaps” (James, 2003, p. 24). However, as cities become denser, many people do not have access to the actual ground, but only to simulations of it in pots or planters and artificial grounds like terraces. Considering soil in the ground and simulations of the ground – such as in artificial planters – shows how different soil conditions affect how one gardens and thereby one’s relationship to the territory. Such a consideration will help me develop the viridic to account for soil and the city.

On the 8th of May 2019, I visited Girona, Catalunya, with Catalan landscape architect Martí Franch Battlori, the director of *EMF Arquitectura del Paisatge*, where he lives and works. As a landscape architect, he has been developing a series of “gardens” using maintenance in Girona’s public spaces. Franch says that he has three gardens: Garden 1, the elevated private terrace of his flat in his apartment block; Garden 2, a public parkland at the end of his street, which he has been using maintenance to open up and; Garden 3, the subject of a larger gardening project with the municipality called “Girona’s Shores.” Franch (2018) and Ehrmann (2019) have discussed Garden 3 extensively, so this paper will focus on the relationship between Garden 1 & Garden 2, which it will compare and contrast. Garden 1 is private and uses planters, and therefore is artificial, while Garden 2 is public and embedded in the ground. Both gardens use gardening and maintenance practices to articulate and sustain them. Still, such practices differ for each because of the nature of their respective soil environments, which are, in turn, affected by differences in ownership.

The benefits of gardening for health are widely recognised (Soga, Gaston, & Yamaura, 2017). By discussing these two gardens, I aim to show that access to actual ground changes what the garden is and the nature of gardening because, as I argued in *Overgrown*, the garden as a type and gardening activity are inherently related. Different ownership models affect residents’ ability to access soil and dictate the *nature of that relationship* to soil, land tenure delimiting gardening practice, and resultant spatial outcomes created by plants. Gardening is a diverse activity in which different types of gardens create different types of gardening. While health studies talk about gardening in a general way, I would argue that different gardening activity types provide qualities to gardening’s available quantitative health values.

My site observations of both gardens and two interviews with Franch about the gardening activities he undertakes for each garden provide the evidence for the cases and additional photographs and site measurements are provided by Franch. In an initial interview, I determined the context and history of Franch's development and use of both gardens. Drawing on my observations and professional experience, I inferred implementation and gardening actions for each, which I then fact-checked in a second interview. In this paper, I adopt Robert Yin's case study model called "Argument Building," in which several cases are organised sequentially to build an argument where each case "has a [particular] purpose within the overall scope of the inquiry" (Groat, 2002, p. 347). Franch's two gardens show two polar opposite types of garden cases, which I discuss in the following order: Garden 1 in a planter on a terrace, and Garden 2 on the real ground - which amply describe two situations that many urban dwellers - and gardeners - face living in the contemporary city. After examining both gardens, I explore two aspects in the "Discussion": how changes in soil situation change the type of gardening that residents can undertake, and, in turn, the material and spatial outcomes that they can achieve in the place where they live, and; how site development instruments abstract ground for planning purposes but in the process lose the real capabilities of land. The latter is a dangerous proposition, since I argue that, rather than being trivial, gardening and soil in gardens on the natural ground are fundamental to achieving positive environmental and microclimatic outcomes for cities. Finally, in conclusion, I return to the viridic look at how this emphasis of soil and its link to the city modifies and enhances my previous definition of it.

Case Study: Two Gardens in Girona



FIGURE 1 Location map of the area Barri de les Pedreres, Girona near the Torre del General Peralta (a) where Garden 1 (b) and Garden 2 (c) are located (Image by Author).

Franch's gardens are located (Fig. 1) in the *Barri de les Pedreres*, or the "Quarries Quarter" of Girona, and can be seen from the tourist "stone route" along the historic wall of Girona. Looking east from the *Torre del General Peralta* (the "Tower of General Peralta"), one can gain a "panoramic view of the... rock formations of... the many quarries in the area, from where the material for the construction of the buildings in the historic center of the city" (Natura Local, n.d.). Topographically, the quarrying process is visible on the south side of the valley; a neighbour's property nestled below a cliff that was a quarry face is visible from Marti's terrace (Garden 1). Garden 2 is located 100 metres east of Franch's apartment block, at the base of the valley in a public reserve that Franch suggests was levelled and built using excavated quarry material.

Garden 1: Terrace



FIGURE 2 Marti Franch's terrace: Garden 1 (Image by Marti Franch).

Looking at the gardens of landscape architects is always an interesting thing to do, made even more interesting because of the size limitations of Franch's little terrace, requiring one to invent a language to talk about it: do planters constitute a garden?

Franch's apartment block is on Passeig General Peralta. This street continues from the gate adjacent to the tower of the same name, heading east up toward Garden 2, past a series of townhouses. Turning south, up the side of the valley, the street turns back up, and Franch's apartment block is on the first kink in the road. On the top floor of a two-storey block, Franch's apartment has windows on the north overlooking the city wall and across the townhouses' roofs below. The terrace faces south, its views hemmed in by an adjacent block below the hill, with glimpses up the valley toward the east, of remnant quarry faces.

The terrace (Fig. 2) is 13.3 sqm in size and is long & thin – approximately 2m wide by 6m long – its surface timber decking. The "garden" of Garden 1 is entirely in containers, primarily comprising cement planter boxes atop the apartment wall on its hot south side, and another on the deck with bamboo to screen the entry to the east, with the remaining assorted pots. The planter is 300mm deep and 300mm wide with a 30mm rim. After having used the containers for some time, Franch noticed that root development on the south side of

the box was limited during plant replacement. Thinking this was due to heat, he installed insulation material inside the planter on the south side, made of neoprene material or similar, like a camping thermal mat to encourage growth, or rather, to reduce discouragement.



FIGURE 3 Franch's terrace planter box, and its constituent soil profile (Image by M. Franch).

The limited depth of the containerised soil profile means that drainage is a crucial factor. The container sits on plastic sheeting on the wall that directs water onto the deck from holes in the planter base. Franch acknowledges this solution arose because of friction with the neighbours concerning the previous path of the water. Inside the planter (Fig. 3), there are three layers of material geared toward providing a free-draining soil medium: a base layer of large volcanic scoria gravel, a layer of sand above it, and the planting soil on the top. The planting soil is a standard nursery container mix. Franch added some local soil with clay to improve the water holding capacity and occasionally added gel balls to avoid overdrying due to the heat from the southerly sun. Like all planters, the soil mix assembly in the container mimics natural soil.

Franch describes his terrace activity as “impulsive gardening” compared to his usual way of working: design. Consequently, the planter plants are diverse, mostly non-native, and he uses the planter to test potential plants for use in his professional projects. Approximately 40-50% of the plants are perennial, with grasses forming the planter’s foundation, and other species including *Diosma*, *Dietes*, *Muhlenbeckia*, and *Hedera* also present. Franch estimates that he replaces 10% of the plants each year. Franch says that most of the maintenance he undertakes in Garden 1 is replacing or cleaning the sprayers for the automatic irrigation system and occasional fertilisation with slow-release pellets.

The viridic is a language of landscape architectural form tied to plants. Branches and leaves of plants are inherently formal, and gardening techniques, like pruning, manipulate them to shape space. Plants grow in the soil, forming reticulate root arrangements that support plant architecture. At a basic level, soil affects and limits the formal growth of plants. Beyond the raw binary of growing/not-growing, there are numerous

other ways that soil properties affect plant growth, particularly if we take a material view that recognises that plant form is material. Chemical properties of the soil affect both the rate and type of growth and colour through flowers. Degrees of compaction and the soil profile's nature affect root development and extent, while also influencing plant architecture. With the limited capacity of the planters on Franch's terrace, the reduced width and depth would affect the "root to shoot ratio" and prohibit the growth of larger shrubs or woody plants (to some degree) and Franch specifically selected grasses based on the capabilities of the container. In this way, the nature – and shape – of the soil environment contribute to a formal and spatial plant outcome.

Garden 2: Reserve

Franch's Garden 3, the innovative "Girona's Shores" (2014), which used gardening/maintenance techniques to create spaces in public parkland, has been widely celebrated, winning the Landzine International Landscape Award in the Infrastructure Category in 2020, for example (Landzine Media LLC, 2020). However, Franch first began testing these ideas in a site at the bottom of the valley in which he lives, at the end of his street, in an area of undesigned or informal public parkland, which he calls "Garden 2", where he "played at being Gilles Clément." Clément is a pioneering French landscape architect who utilised mowing as a management and space-shaping tool in his "Garden[s] of Movement" notably at Parc André Citroën (1992) in Paris where "gardeners... followed [the park's] development and immediately participated in its maintenance even before [its] opening to the public" (Clément, 2007, p. 83). Topographically, this valley comprises a series of approximately ten terraces that climb toward the ridge above. Franch believes that quarrying created these terraces by filling areas with spoil excavated from the south side of the valley, including directly behind his apartment block. The terraces are levelled by beautifully crafted retaining walls made of small pieces of leftover limestone from the quarry. However, the absence of rock in the terrace soil suggests to Franch that quarrying did not take place in the base of the valley, the ground being a combination of spoil and deposition from erosion above. The lowest terrace had been appropriated by a man for his house when Martí first visited, planted with an orchard, but was derelict and filled with rubbish. The one above was overgrown and inaccessible, with informal footpaths making their way through gaps in the vegetation. Franch describes the landscape at this time as "a kind of prairie with large shrubs poking out from it."



FIGURE 4 Franch clearing the terrace of Garden 2 (Image by M. Franch).

This type of leftover space is characteristic of the *Landscape Metropolis*, a piece of ambiguous ground that corresponds precisely to Clément's notion of "*du Tiers paysage*" ("Third Landscape") since it is: "*délaissé*," neglected or abandoned after the termination of exploitative land use; a "*réserve*," a site of difficult access and management and; is a landscape of municipal designation rather than specific purpose. (Clément, 2004, p. 9) It is its "left-over-ness" that allowed Franch to "appropriate" it, a term coined by Henri Lefebvre in *The Production of Space*. Lefebvre would probably prefer the term *detournement* or *diversion*, however, where "an existing space may outlive its original purpose and the *raison d'être* which determines its forms, functions, and structures; it may thus in a sense become vacant, and susceptible of being diverted, reappropriated and put to a use quite different from its initial one" (Lefebvre, 1991, p. 167). This definition fits with Clément's and indeed, it is Lefebvre's "forms" – the flattish areas of the terrace – that make it ripe or "susceptible" for this diversion.

While Franch calls his terrace, Garden 1, his "own" garden, its small size and the limitation of its containers left him wanting to undertake "spatial" gardening. This "Third Landscape" seemed an ideal location. He would walk there regularly with his young children, who would disappear off paths in the vegetation that were too tight for adults to follow them, and which they named things like the "Elf Path." Franch first began pruning trees, both for access and views, and then bought a strimmer machine, and first used a brush-cutter metal blade to start cutting the shrubs down – mostly *Rosa* and *Prunus* – to ground level (Fig. 4). This stage could be called "surface control", aimed at making the surface uniform and revealing the flat topography – and walls – of the terrace. Over the following few years, Franch used a strimmer attachment to cut the grass and create a relatively uniform surface. Eventually, the council took over and mowed the area three times a year using a tractor with a tough cutting attachment, as part of Franch's Girona's Shores project in the broad areas of "Third Landscape" on the eastern side of Girona, where Franch lives. Labyrinth and "wi-fi" patterns have been cut in by the council on the terraces above, which use similar gardening techniques to those he uses, but which are too obvious in their pattern for Franch. Marti pulled back from maintaining this landscape so intensively but continued pruning trees on his walks, though he notes that he feels shy pruning in front of others who use the space, not wanting other residents to think that he is trying to "own" the site. For Franch, this activity constitutes a relationship with landscape and is not about owning it through these acts – a fact about which he is adamant. He notes that further up the valley, others have started to use planting and other measures to create private interiors within the public space, mostly for productive gardens. At the back (west) end of the terrace, Franch and a neighbouring friend with kids created a covered arbour that they cut out of the vegetation. This area, called the "Yurta" (or yurt), comprised a 6mm steel frame that crossed from one side of the path to the other, anchored into the ground, running along the length of the track (Fig. 5). This structure aimed to shade the space and allow for picnics and seating below it when it is hot. For this structure, Franch trained existing plants that were naturally growing adjacent to the path such as *Clematis vitalba*, *Prunus spinosa*, *Rhamnus alaternus*, *Crataegus monogyna* *Ulmus minor*.

Discussion

The case studies of Franch's two gardens differ in obvious ways: one is on a terrace in a container and the other on the real ground; one is private, the other public; plants in one are planted while in the other are spontaneous; one is wholly artificial and the other mostly natural and; much energy is required to maintain the bare status quo in one while the other involves labour to keep it under control. In this section, I will discuss the differences between these two gardens to explore the relationship between gardening and soil, and then how issues of land tenure affect the nature of the soil environment, which in turn affect the character of the gardening activity.



FIGURE 5 Marti Franch in Garden 2 from my visit in 2019 with its “Yurta” that he and a neighbour erected, training spontaneous vegetation over it (Image by Author, 2019).

Soil & Gardening

Landscape architects and designers primarily understand the garden as something planned, a spatial or material phenomenon. “A humanly planned garden comes into being in and through time,” Roberto Pogue Harrison argues in *Gardens: An Essay on the Human Condition*, because plants change as they grow to form its space (Harrison, 2008, p. 7). I argued in *Overgrown* that the garden is defined as much by the act of gardening as it is by its space, where this activity takes place. Consequently, that “the garden [as a space] and [the act of] gardening are synonymous” (Raxworthy, 2018, p. 25) was a rationale for me to develop the term *viridic*, a form language for plants tied to growth and maintenance, which must necessarily be about soil.

The earth is not mute but active in growth, since plants are grounded and nourished by the soil. Correspondingly, by fostering soil, growth is also encouraged, making soil a crucial part of the *viridic*. While working with richer soils than those in Catalunya, Henk Gerritsen proposed a model of gardening focused on the soil. For example, in his model, “plants would grow slowly and relatively small,” which would also affect competing plants or weeds that would otherwise overgrow them in rich soil. (Gerritsen, 2008, p. 88) Faced with the succession cycle, Gerritsen suggests “the most important trick to keep maintenance to a minimum is to limit fertility,” which, for naturally fertile soil, means to “*never* add fertilizer, remove leaves and stems of dead plants... [and to] use compost sparingly” (Gerritsen, 2008, p. 88). Henk Gerritsen argues for working with the *minimum* conditions that a plant needs rather than the maximum, as we might expect since he uses soil fertility to regulate growth. Less growth equals less maintenance.

The reserve at the end of the street – Garden 2 – corresponds to Gerritsen’s situation. The soil has characteristics that encourage the growth of spontaneous vegetation. On the real ground, the soil does most of the gardening work, only adjusted, topped up, or restricted, as Gerritsen suggests, to suit desired spatial outcomes. Gerritsen’s proposition, however, is predicated on the competition between planted ornamental plants and spontaneous vegetation. In Garden 2, Franch’s gardening acts operate by shaping existing growth for spatial effects, such as tree pruning, removing vegetation, cutting down shrubs, and training plants over frames, in the “Yurta.”

In contrast, Garden 1 – on the terrace – with its artificial soil profile, is entirely different. Pots and other plant containers are simulations of the ground. This simulation must have enough integrity to fool plants into believing that they are at home and actually in their natural setting. While gardening is always an act concerned primarily with cultivating soil to encourage plant growth, in containers, the design, arrangement, and maintenance of the soil profile is a simulation of – and a proxy for – extensive, large-scale, and dynamic connections naturally present in the soil biome. The natural ground has what I would call a “buffer,” a foundation of soil-structure that can hold water and nutrients that implicitly provide a metaphorical “leg-up” that the container would have to simulate to achieve the same starting position. Gardening in Garden 1 comprises an act of simulating a natural soil, which is like “faking” ground, more than optimising plant potential as, for example, it does in Garden 2.

Ground and land tenure

The soil is a continuum that has numerous roles and is the literal foundation for everything: for building and food, as growing media. As a material, the soil has a range of properties that affect multiple aspects of landscape architecture, gardening, and building design and practice, many of which overlap. One example of such overlap is how the properties of a given soil as a foundation and a growing medium are affected by soil structure. Sand is well-draining, keeping a soil aerated, while at the same time having compressive strength, making it a better foundation, for instance. For my argument, this overlap provides a bridge between the discourse of gardening and that of site development.

The ground’s bearing capacity is pertinent since the ground must be the “foundation... for building elements penetrating the terrain to reach a stable layer on which to transmit vertical loads” (Berlanda, 2014, p. 60). Here we have a link to the physicality of the site and its geology. Treating the floors of a building as manifestations or abstractions of ground recalls Stan Allen’s characterisation of a building as a kind of accelerated geology in his book *Landform Building*. In his essay in the volume “Matter of Surface,” Allen suggests that “landform building... blurs the boundaries between landscape and architecture, treating the building itself as a fragment of the constructed ground” (Allen, 2011, p. 364). For Allen, this normalisation is problematic because “constructing the ground [is] negotiating two equally difficult realms... [because] the ground wants to be slow, weighty and deep on the one hand [and] level and consistent on the other” (Allen, 2011, p. 365).

Sites are developed based on their “capability” for building, a process that makes ground abstract. A form of this abstraction is when the ground is simply facilitating other uses. *Floor Area Ratio or FAR* maximises the ground’s financial return capacity by allowing for multi-storey development as part of planning controls for density and land use. Platt describes FAR as “specify[ing] the maximum floor area for a structure as a multiple of the site area [so that, for example] a FAR of 10 allows a ten-story building to cover an entire building site or allows a 20 story building on half the site” (Platt, 2014, p. 96). Calculated as a ratio compared to the area of the site, FAR is a duplication of the ground, a process that Simon Unwin calls “stratification,” using a geological analogy, which thus suggests geology (Unwin, 2009, p. 197).

Although FAR is, in essence, an amplification of the ground – an exponential multiplication of its surface area – floors lack the capabilities of the earth in terms of soil and growing media. In the last 20 years, “greening” initiatives have focused on developing technologies to allow plants to grow on architecture in various ways (Dunnett & Kingsbury, 2004) & (Blanc, 2008), and Garden 1 is an example of this. While artificial greening is now an accepted and successful technology, there are differences between the soil in the ground and soil in a planter. As Pollan reminds us, “we can nourish but not, as the scientist’s black-and-white picture of it would have us think, simulate, soil” (Pollan, 2002, p. 139) because individual dynamic natural relationships are not present in planters. These include broad and deep connections to soil water

and organisms, the self-replenishing systems of organic matter, and the ability of plants to modify their environment, as is the case for Garden 2.

The linked properties of the site, as topography and as soil, become geotechnical and dependent on financial constraints. Once these languages are connected, we recognise that those same geotechnical descriptions are also descriptions of growing media. Those properties are still lost when a building covers a site - an obvious point that is seldom considered. Planning policy recognises agricultural land as valuable based on soil productivity, and correspondingly sprawl is seen as a threat to food security. When planning codes limit site-coverage, they do not generally do so for the sake of gardening, but to minimise effects on the amenity of adjacent dwellings. That gardens and gardening might be necessary would seem to be a recognition of frivolity. Yet, as we see from Franch's experience, the urge to undertake gardening can be profound, yet limited by site development. Gardens embedded in the ground contribute to ecological systems and also contribute to climate change mitigation, in a way that accumulates to have a resulting significant effect at scale. When we recognise that gardens are sustained by gardening - and provide benefits to gardeners - we also realise that treating gardens seriously and giving them real land is vital ecologically, as well as being a planning issue.

Conclusion

Beyond being merely a receptacle for plants, the soil is an active part of plants' growth, and gardeners manipulate it as part of their suite of gardening techniques used to precipitate growth. As such, any definition of the category that I propose of the viridic must necessarily consider the soil's actions as part of it. Since I tend to focus on pruning in *Overgrown*, this paper contributes to my revision of that category.

In my formulation of the viridic, I extended Gottfried Semper's criteria, which focusses on the nature of the material, calibrated to the tools, and the techniques used to manipulate it. I propose that it is growth itself that is the material for the viridic (Raxworthy, 2018, p. 134). Correspondingly, while I focused on pruning actions in *Overgrown*, an obvious revision to the viridic is to incorporate chemistry as a critical component. The raw material for growth is photosynthesis, so carbon dioxide is an essential chemical component in the air that is implicit in any definition of the viridic. For most of the others, the soil is a vital source of chemicals that, as part of growth, must also, therefore, be part of the viridic. While the most apparent soil-borne chemical that is also implicit to growth is water, there is a whole range of other soil-borne macro and micro-nutrients that drive growth. These affect growth in both quantitative - with growth treated as a mass of biological material - and qualitative ways - where colour and form of such growth gains particular visual and formal qualities. The viridic is a dynamic view of form, so plant morphology is always tied to plant physiology, of which soil is a vital part.

The viridic was always a formal category, and in my discussion of the planter in Garden 1, I referred to the way in which the container's size also affected the plant. It does this by limiting root growth and, thereby, plant extent, a crucial factor in contributing to numerous positive environmental outcomes associated with plants. For example, smaller plants sequester less carbon than large ones, showing that restriction on root size is also a restriction on the volume of woody plant material. For my existing definition of the viridic, this woody material was the focus of many of the formal outcomes discussed in *Overgrown*. Reductions in soil volume for trees on concrete slabs in suspended landscapes demonstrate the soil depth's pruning effect on plant growth. Admittedly, this makes the soil a subtle participant in the viridic but a participant nonetheless. Speculatively, one could imagine a project in which soil depth and chemistry were factors for designing plant form, indirectly. If one wishes to have large trees that can have significant urban effects, as I have argued,

the land tenure and urban typological context of site development substantially impact the soil in terms of what can grow and hint at a relationship between the viridic and the urban.

A garden is a kind of collaboration, and the viridic always included the gardener and their actions as shapers, where they foster plant performance for their aims. That fostering has numerous positive environmental consequences that include carbon sequestration, reduction in evaporation from soil and other surfaces, increases in soil water-holding capacity, soil fertility improvements, and habitat for a whole range of other organisms. But to perform the majority of those positive environmental benefits, real soil in the ground is required. The availability of earth to garden on the soil is a planning issue because – aggregated across a city – domestic gardens form a significant ecological reservoir that is under threat from high density “good practice” of urban design.

Consequently, it is also essential to appreciate, as I conclude, that – as Franch told me – it was the limitation of his terrace (Garden 1) that made him move to the reserve (Garden 2). To understand the conundrum of being an urban dweller, these have to be seen together: that a garden is more than just a space for plants, but also an emergent – and serendipitous – opportunity to engage with growth by gardening. It is a custodial act. Limiting access to soil on the ground is a fundamental limitation to this kind of activity, and – as we have discovered during Covid 19 – access to the processes of nature and engagement with it by, for example, gardening, is a significant inhibition of quality of life. Future development typologies must consider this when they abstract the ground and work at all costs to keep it present and active for people living together densely.

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Designing with Hybridity, Scalar Paradoxes, and Complex Dynamics

How Two Domestic Gardens Challenge the Contemporary Landscape Imagination

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Abstract

Belonging to the small-scale and private sphere, gardens are usually omitted from urban and regional landscape plans. Yet, we argue that the assemblage of everyday gardens – the garden complex – is an inherent component of the landscape metropolis that holds the potential to become a powerful landscape agency. This potential is enclosed, among others, within three particular qualities: *hybridity*, *scalar paradoxes*, and *complex dynamics*. Practicing these qualities as concepts for landscape design and analysis helps to expand the imaginaries of everyday gardens to more purposefully reflect and negotiate the condition of the landscape metropolis. By means of two case studies – two domestic gardens – we demonstrate that designing with hybridity entails versatility, simultaneity, and multiplicity, thereby engendering a richness of meaning and experiences. This pluralism is also inherent in the scalar paradoxes we observed. Cross-scalar interactions evoke design implications that transcend the confines of the private plot, surpassing individual, human gain, and making individual gardens enter into dialogue with each other and with their surroundings. Lastly, by working with an enlarged set of complex dynamics, the two case studies prove that a garden can be a driver of change and innovation, and thereby a valuable source of resilience.

Keywords

landscape architecture, landscape imagination, landscape metropolis, garden complex, garden design, domestic gardens, everyday gardens, hybridity, scalar paradox, complex dynamics, Flanders

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Introduction

Mind the gap: the absence of the garden complex in the landscape imagination

Belonging to the small-scale and private sphere, gardens are usually omitted from urban and regional landscape plans. At their best, exceptional gardens are valued as singularities of historical, cultural, religious, or political significance. On the contrary, the many everyday domestic and institutional gardens scattered all over the landscape metropolis are most often considered as a mere backdrop of urbanisation.

Yet, the assemblage of everyday gardens – further called the garden complex (Dewaelheyns, Rogge, & Gulinck, 2014; Dewaelheyns, Kerselaers, & Rogge, 2016) – occupies between 22% and 36% of the urban ground (Colding, Lundberg, & Folke, 2006; Mathieu, Freeman, & Aryal, 2007). Research in the social and environmental sciences has shown that these everyday gardens can make a marked contribution to the social and environmental collective. They positively impact the sustainability and liveability of cities and urban regions by mitigating climate change and urban biodiversity loss, by easing urban water stress and urban heat island effects (Tratalos, Fuller, Warren, Davies, & Gaston 2007), and by alleviating the ecological impact of urbanisation (Tzoulas et al., 2007). Moreover, gardens are beneficial to human health, well-being (Cameron et al., 2012), and urban resilience (Moulaert & Van Dyck, 2011). They act as transitions between urban and rural (Phillips, Page, Saratsi, Tansey, & Moore, 2008), private and public (Gehl, 1987). Notwithstanding these convincing arguments, research and design in the field of landscape architecture has largely overlooked the significance of the garden complex (Jakobsson & Dewaelheyns, 2018) as a vital landscape component.

We argue that the garden complex is an inherent component of the landscape metropolis that holds the potential to become a powerful landscape agency. Furthermore, we argue that the general neglect of the garden complex in landscape architecture research and design indicates an important gap in the contemporary landscape imagination, which in turn has resulted in a flawed design literacy. After all, the landscape imagination – or the way we look at, think about, represent and project landscapes – plays a crucial role in rethinking and reshaping our environments (Cattoor & Perkins, 2014) in general, and the landscape metropolis in particular.

Sources of landscape agency for an (a)typical landscape component

With thousands of individual and privately owned gardens being mostly hidden, dispersed, and individually managed, the garden complex lacks obvious formal, scenic, and structural coherence (Cameron et al., 2012). In this sense, the garden complex is an atypical landscape component: it has no distinct spatial form, nor does it produce a well-defined spatial pattern. Its inherent scalar paradox implies the lack of any obvious structural nor structuring qualities: contrary to urban green infrastructure in the classic sense, the garden complex lacks hierarchy and its relational behaviour seems limited to minor interactions between neighbouring plots. Moreover, the garden complex's hybrid nature, mediating, among others, between nature and culture, private and public, makes it slip easily through the nets of the agendas of thematic research and sectorial planning policies. Furthermore, the unstable nature of gardens – adapted ad hoc to new residents, new life phases, and new lifestyles – and ceaselessly affected by nature's whims, creates an elusive timescape that is hardly compliant with traditional planning procedures.

To summarise, we identified three qualities distinctive to the garden complex: *hybridity*, *scalar paradoxes*, and *complex dynamics*. These qualities make it difficult to experience and conceptualise the garden complex

as an urban landscape component in its own right (Van Delm & Gullinck, 2011), let alone as a valuable agency in the contemporary landscape metropolis.

- 1 **Scalar paradoxes:** Gardens are mostly associated with a small-scale context, often left to the private sphere, and omitted from large-scale maps and plans (Gill et al., 2008; Van Delm & Gullinck, 2011). Nevertheless, a myriad of small decisions taken in many small gardens aggregate into the larger-scale context, with considerable impact (Dewaelheyns, 2016).
- 2 **Hybrid qualities:** Gardens resist clear-cut thematic associations, instead mediating between apparent dichotomies such as nature–culture (Miller, 1993; Francis & Hester, 1990), urban–rural (Phillips et al., 2008; Qviström, 2007), private–public (Gehl, 1987).
- 3 **Complex dynamics:** Despite the relative fixity of its legal boundaries, there is little permanence in the garden complex’s spatiality, creating a complex timescape. The biospheres of gardens, overlapping the human and non-human, negotiate ongoing and often conflicting processes of occupation and negotiation.

We change the perspective. The above properties not only pose difficulties, but can also become potential sources of resilience and landscape agency: gardens are omnipresent; not every garden has the same sensitivity to a certain shock; and a multiplicity of values, actors, means and processes can be mobilised to obtain small changes with a significant aggregated outcome. Everyday gardens can become resources by small actions (Dewaelheyns et. al, 2016).

Moreover, are these seemingly distinctive properties not the common spatial good of the contemporary landscape metropolis? We would definitely argue yes. In a condition characterised by widespread urbanisation - in which spatial centrality and central authority make room for dispersion, fragmentation, and bottom-up agency - traditional scalar schemata do not hold. Any clear-cut categorisation is subject to contestation in an environment that we no longer can, nor choose to, classify in terms of traditional dichotomies such as urban–rural or private–public. In our increasingly empowered pluralist society, hybridity and heterogeneity have become the new normal. In a context that is continuously challenged by the combination of small-scale incremental change and large-scale calamities – environmental, economic, or other –, diverse, dynamic and adaptive environments have proven much more resilient.

As a consequence, the qualities of the garden complex that we highlighted (*scalar paradoxes*, *hybrid qualities*, and *complex dynamics*), are relevant design concepts for harnessing its potential with(in) the landscape metropolis. Indeed, Brenner and Schmidt (2011), Tschumi (2012) and Cattoor (2015) have also argued that contemporary territories need to be rethought precisely in terms of *trans-scalarity*, *hybridity*, and *complex dynamics* for humanity to be able to negotiate and address increasingly complex spatial problematics.

Material and Methods

We demonstrate that *scalar paradoxes*, *hybrid qualities*, and *complex dynamics* are fruitful concepts for analysing and designing everyday gardens within the framework of the contemporary landscape metropolis, and from a landscape architectural perspective, by means of two case studies.

We discuss how both gardens (implicitly) deploy *scalar paradoxes*, *hybrid qualities*, and *complex dynamics* to (re)conceptualise the garden’s meaning within its landscape context as well as to leverage change in its surroundings. We furthermore illustrate how these three concepts can enrich our ways of looking at, and thinking about, the many seemingly insignificant gardens that together make up the garden

complex. So, we explore how *scalar paradoxes*, *hybrid qualities*, and *complex dynamics*, simultaneously act as concepts of landscape design and analysis. In addition, we discover how these concepts can help us to reframe, reimagine, and reshape gardens, to ultimately mobilise some of the powerful capacities of the garden complex.

As such, our analysis focuses on the bottom-level of the individual garden – its re-imagination through design and analysis – to reflect upon on its contributions to the higher scale level. Based on the results, we discuss the agency of the garden complex, as the accumulation of these many individual gardens, in the context of the landscape metropolis.

We analysed both the design and current state of two domestic gardens of the estimated total of 2,039,603 gardens (Pisman, Page, Saratsi, Tansey, & Moore, 2018) in Flanders. The two gardens occupy a different position within the Flemish landscape metropolis and cover a variety of contexts. The first case focuses on the most urbanised part of the landscape metropolis (Case 1: Finstraat, Brussels Capital Region) and was designed by a garden architect, whereas the second case involves the design of an interior architect for a suburban plot situated away from the urban core and relating to the countryside (Case 2: G-Lab, outskirts of Bruges).

Mixed method analysis of the two gardens and their sites entailed morphological, compositional, and phenomenological investigations and focused on understanding how the two projects work with or provoke *scalar paradoxes*, *hybrid qualities*, and *complex dynamics*. These analyses were complemented by open interviews with the designers (Geert Meysmans, personal communication, July 10, 2020; Tom Callebaut, personal communication, July 10, 2020), providing us with insights into the processual aspects of the landscape design projects and the interaction between stakeholders.

Since this is an explorative study, the aim is not to present a fully-fledged analysis of each of the three concepts, nor to be representative by delivering a thorough overview of all changes that individual gardens could generate in their surroundings.



FIGURE 1 Location of case study garden, Finstraat (white polygon), within the urban tissue of Brussels. The Finstraat garden is an urban garden situated within a densely built neighbourhood of Sint-Jans-Molenbeek, a municipality in the Brussels Capital Region. Molenbeek is a long-existing agricultural community, rapidly industrialised in the 19th century, with industrial activities mainly concentrated along the canal and railroads. To date, the municipality is de-industrialised and is being assimilated into the urban tissue of Brussels, with ongoing urban renewal projects and brownfield redevelopments. (Image by Google Earth, retrieved 14-07-2018.)

Case Study 1. Renaturalisation and rehabilitation of an inner-city parking lot

Finstraat garden promotes the renaturalisation and rehabilitation of an inner-city parking lot in Sint-Jans-Molenbeek (Brussels Capital Region) (Fig. 1). As a rather deprived neighbourhood, Sint-Jans-Molenbeek has long been the city of arrival for many immigrants. To date, the municipality is slowly being assimilated into the urban tissue of Brussels, with ongoing urban renewal and brownfield redevelopments. Finstraat garden is part of such a private urban renewal project initiative and accompanies the design of a three-storey apartment building on an inner-city court (Fig. 2), designed by Els Claessens and Tania Vandenbussche. This inner-city court, reminiscent of Molenbeek's industrial past, alternately hosted small warehouses or functioned as a car park. When embarking on the project in 2009, landscape architect Geert Meysmans found the site covered by concrete slabs, between which *Buddleja davidii*, a pioneer plant, spontaneously grew.

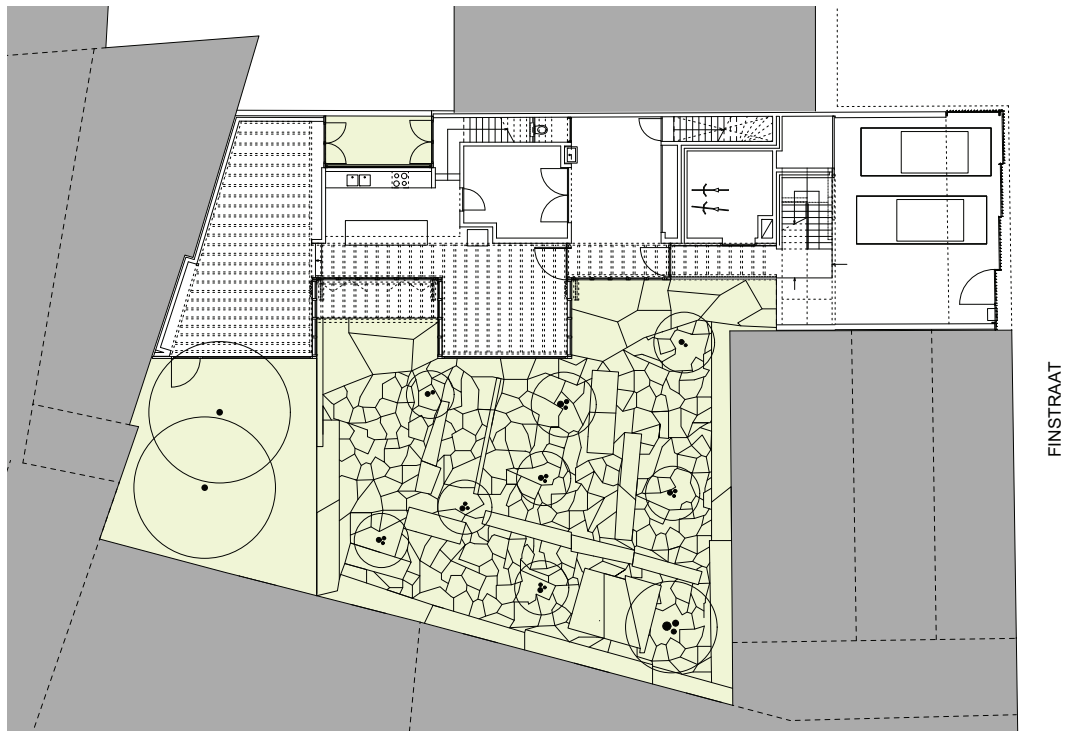


FIGURE 2 Plan of the Finstraat garden design. The site of the Finstraat project is characterised by a small façade (right hand of the plan) opening up to a large inner city block (central part of the plan). Surrounding building blocks are coloured grey. On the garden plan (green colour), the concrete strips and the planting of the Amalancier ovalis (small circles) and *Celtis occidentalis* (large circles) are indicated. (Drawing by ectv. Reprinted with permission).

Hybridity: The garden as a framework for hybrid recolonisation

Gardens often represent an amalgam of different interests and 'themes', that mediate or negotiate between nature and culture, among others. In Finstraat, the ideas of *garden-as-nature* and *garden-as-experience* are simultaneously elaborated; the garden is as much about creating opportunities for renaturalisation as it is about providing its inhabitants with a place to enjoy and experience. To mediate both ends, Geert Meysmans set up a hybrid framework for human and floral rehabilitation.

The hard-surfaced materiality Meysmans found on the site - a concrete slab reminiscent of the parking lot - provided the base material for establishing this framework. By implementing different strategies of dealing with this concrete slab - altering it, reusing it, removing it, adding another layer on top of it - Meysmans shaped a set of distinct conditions for the hybrid recolonisation of the site (human and floral) (Figs. 2-6). Each of these different site conditions implicitly steers natural plant dynamics and promotes or inhibits human activity. At the same time, high costs for complete removal of the concrete slab and supply of new topsoil to the site were prevented.



FIGURE 3 Construction of a framework for the different garden zones through differentiated soil treatments. The design of the central garden (bottom half of the picture) literally breaks through the sealed character of the site by scattering the concrete slab into the plant substrate. Several strips of concrete are left unscattered to be used as pathways. The plantings of *Amelanchier ovalis* ensured the client of the direct presence of structuring green. In the upper garden (top half of the picture), reachable by a concrete step, the concrete slab was fully removed and grass with two *Celtis occidentalis* was provided. This approach enabled different modalities of floral and human recolonisation and in doing so stimulated a variety of garden experiences. (Photograph by Geert Meysmans, 2013. Reprinted with permission).

In the central garden zone, the concrete slab - a plant barrier - was shattered to transform it into plant substrate for spontaneous vegetation (Figs. 2, 3). This intervention cleverly unites the client's desire for a green oasis inside the city with the designer's ecological conviction that appropriate vegetation can and will grow spontaneously on any site when the opportunity is provided. The shattered concrete provides the necessary conditions for the soil to retain its moisture, resulting in a cool urban microclimate for the client to enjoy as well as providing a fertile condition for pioneer vegetation to spontaneously seed and grow from surrounding seed banks (Fig. 5). The spontaneous vegetation was supplemented with several multi-stemmed *Amelanchier ovalis* trees planted on a loose grid, casually structuring the garden and providing a few higher shrubs from the start to look out to, as desired by the client (Fig. 2). After the first growing season, the outdoor space was fully greened, and a few years later the *Amelanchier* grid was completely overgrown by *Salix caprea*. *Tussilago farfara* also popped up and ferns arrived on the site, along with *Dryopteris* and a few *Polystichum*. The speed at which the spontaneous vegetation started to grow without fertiliser was surprising. These shifting outdoor scenes provided by natural succession, turned out to be an experiential treat for the client.

In this central garden, the reused slab facilitated human movement, within the confines of the pathways, composed out of remaining strips of concrete left unshattered (Figs. 2, 3, 5). These pathways were deliberately configured as a loose collection of strips leading everywhere and nowhere, to provoke an explorative garden experience instead of providing a straightforward walk from A to B. Over time, this loose composition inspired the client to diversify the management of the planting in between the concrete paths; through minor weeding, variation was achieved in the development of spontaneous vegetation, as well as in the garden experience.



FIGURE 4 The central garden as an urban green enclave. The experience of the central garden is built up around the exploration and observation of urban nature. Remaining concrete strips provide access to the central garden's wilderness. (Photograph by Geert Meysmans, 2018. Reprinted with permission).



FIGURE 5 The upper garden welcomes human activity and hosts the more traditional garden functions, such as sitting outside (alone or with friends and family), in chairs or a hammock. Natural plant growth is limited here. The central garden shows a reverse pattern (bottom). Here natural plant growth is facilitated to a large extent, and human use is rather limited to observing flora and fauna and minor garden management actions. (Photograph by Geert Meysmans, 2018. Reprinted with permission).

An extended step – also made of concrete – marks the transition from the central garden to the upper garden (Fig. 4). This raised part of the garden was previously occupied by a storage building. Here, all concrete was removed to make room for a lawn that is freely and easily accessible for human activity. This elevated zone is drier. Here, plant species including grasses and *Celtis occidentalis* trees were selected by the designer as they resist drought, warmth, and need a stony soil.



a



b



c

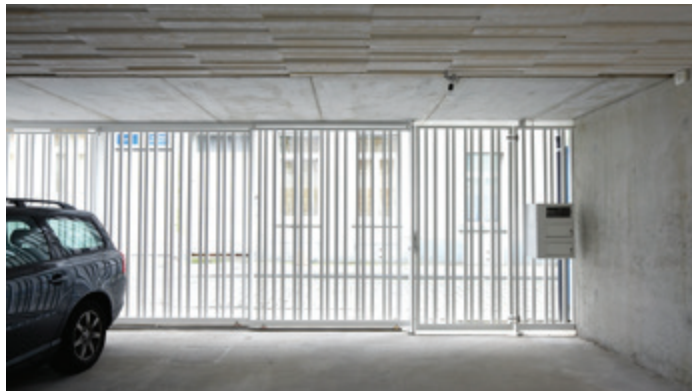
FIGURE 6 The green roof. On an intimate scale and enclosed within the semi-private interior of the building block, the green roof brings the garden experience to the immediate neighbours who live on the first and second floor. For the green roof, the garden designer did not follow a traditional design layout. The green roof was installed in two levels, with 40 to 60 cm of substrate at the edges going to 5 cm of substrate in the middle. This set up allowed the planting of vegetation, like *Jasminum nudiflorum* to grow over the roof's edge, contributing to the experience of the garden as an urban jungle. The low substrate in the middle is covered not only by sedum but also by *Thymus praecox*, *Saponaria officinalis*, and different grass species. (Photograph by Geert Meysmans, 2018. Reprinted with permission).

Lastly, where the new apartment building now covers the ground previously sealed by the concrete slab, an elevated natural layer was added in the form of a green roof (Figs. 6 a,b). The installation of a green roof in two levels, with 40 to 60 cm of substrate at the edges, going down to 5cm of substrate in the middle,

allowed the planting of vegetation like *Jasminum nudiflorum* to grow over the roof's edge, contributing to the experience of the garden as an urban jungle (Figs. 6 a, 8 b). Here, restricted human access and a thickness gradient ensure an enriched species palette. Taken together, the landscape design strategy deployed in Finstraat, *creating a hybrid framework through differentiating soil treatments*, enabled different modalities of floral and human recolonisation and by doing so stimulated a variety of garden experiences.

Scalar Paradoxes: Autonomous multiplication of urban green enclaves

As a source of landscape agency, scalar paradoxes comprise tweaked cross-scalar relations and interactions. Finstraat obviously facilitates cross-scalar mobility of local (fauna and) flora. The resulting propagation of plants, though of a relatively small scale, provides a range of ecosystem services to the neighbourhood, while on the other hand also works to further gentrify the area in hand.



a



b

FIGURE 7 Front gate and passage with diagonal vista between street and garden. Finstraat is a private garden. As such, access to the garden is limited; a gate closes the site from the street, allowing only a peep towards the greenery behind from the street. The designers opted not to extend the greenery up to the street, through the passage, or by means of façade greenery. The reasons for this were the difficult conditions for plant growth within the passage, and the unsafe character of the neighbourhood, as well as the highly controlled detailing of the architecture on the street. (Photograph by Hilde D'haeyere. Reprinted with permission).



a



b

FIGURE 8 The garden entrance from the stairwell just after landscaping (left) and six years later (right). Natural plant growth and succession not only provides shifting outdoor scenes but also wilderness experiences for the client. Cross-scalar interactions between the ground level and green roof even enhances this. The *Jasminum nudiflorum* growing over the edge of the roof, on the thick rooftop substrate at the outer edges, strengthens the experience of an urban wilderness. (Photograph by Geert Meysmans, 2013 – 2018. Reprinted with permission).

While the Finstraat garden allows surrounding ecologies to partly take over, the garden itself does not succeed in returning its full potential to the neighbourhood. Literally, the garden is a germ of urban greening, as it collects seeds from neighbouring flora through airborne spread, and provides a habitat for local fauna. Figuratively, the green oasis is shared with the public domain of the street to a limited extent, with a diagonal vista through an iron gate allowing passers-by just a peek into the garden (Figs. 7 a,b, 8 a). However small, this is a welcome green break through the closed façade of the urban block. Because of the unsafe character of the neighbourhood, and because of the highly controlled detailing of the architecture, the designers did not opt for extending the greenery, through the passage, up to the street. On a more intimate scale enclosed within the semi-private interior of the building block, the green roof brings the garden experience to the immediate neighbours (Figs. 6 a,b,c).

In recent years, more urban green pockets popped up in the surroundings (Fig. 1) as a consequence of the gradual gentrification of the deprived neighbourhood. This process of urban greening is mainly driven by individual needs. Although these initiatives are often private, self-centred, and autonomous, the assemblage of these individual green pockets altogether does contribute to the liveability of the neighbourhood, providing micro-climate regulation, opportunities to experience nature, infiltration of water, provision of pollination, and sequestration and storage of carbon by vegetation, among others. From a more critical perspective, the ongoing process of urban greening in which Finstraat takes part most likely stimulates further gentrification, dislodging less-fortunate inhabitants as the area becomes more liveable and sustainable, and hence more attractive to the more affluent urbanites.

Complex Dynamics: The garden as a deliberately provoked and hybrid palimpsest

In Finstraat, major shocks and incremental change caused by human and non-human agents interact as equally important drivers of change. The major shock that set in motion the site's transformation was the shattering of the concrete slab, a human intervention in the landscape. Being an excellent plant substrate, the broken-down concrete was rapidly colonised by spontaneous plant growth, a creeping evolution of non-human natural dynamics, facilitated by the absence of human intervention (Figs. 5, 8 a,b). As such, a single action like shattering the concrete slab for plant substrate drastically changed the site's habitat conditions for human and non-human life. Natural succession has now reached the stage in which ferns are emerging on the site. And although this intervention reduced the physical accessibility for humans compared to the pre-existing parking surface, the opportunities to experience the site are largely increased, through a wealth of gradients, vegetation, and fauna (insects, birds etc.).

As such, the garden can be conceptualised as a deliberately provoked, co-evolutionary palimpsest (Corboz, 1983). Both human and non-human substances of the site's past are maintained, recuperated, altered, or erased in an explicit way, like the reintroduction of plant species from the dormant seedbank and the differentiated reuse of the concrete slab – (Fig. 3). In this sense, Finstraat garden can be considered a local history project, narrating the site's hybrid history (industrial and ecological) as well as that of its wider surroundings.

Case Study 2. Experiments in opening up a suburban house, plot, and street

The second case study, G-lab in the outskirts of Bruges, is an ongoing experiment with opening up a suburban house and plot to create a more generous space. Its context is typical for the Flemish metropolitan landscape: a suburban allotment with few public amenities, where privacy and quietness rule. The residential street where G-Lab is situated links to the natural reserve Ryckvelde, consisting of forest patches and grasslands under botanical management (Fig. 9). Here, in 2005, the client/designer Tom Callebaut purchased a 1970s-style bungalow in which to live with his newly composed family. The traditional garden had a front and back lawn, closed off by perimeter hedges.



FIGURE 9 Location of case study garden G-lab (white polygon) within the suburban fringe of Bruges. The G-lab garden is situated within a typical context for the Flemish metropolitan landscape, a suburban allotment with few public amenities, where privacy and quietness rule. The site links directly to the natural reserve Ryckvelde, consisting of forest patches and grasslands under botanical management. On the other side of the street, a remnant forest patch refers to the forested history of the neighbourhood. (Image by Google Earth, retrieved 14-07-2018.)

Complex Dynamics: The garden as a catalyst for social change

While the interplay between culture and nature is often the focus of attention in garden discussions, gardens can also be the locus of complex social dynamics. G-lab illustrates this social capacity of individual gardens very well. Within the confines of his suburban plot – long considered the pinnacle of self-centeredness – Tom Callebaut and tc-plus set up a series of ongoing interventions (starting in 2006 and ongoing) to stimulate human interactions, and thereby enhance neighbourhood dynamics. An initial set of experiments aimed at provoking dialogue between neighbouring plot owners, by breaking the divisive power of the in-between hedges. Removing the rear hedge instigated communication with the owner of the pasture at the back of the plot, resulting in an agreement of mutual benefits: the client/designer gained a view of the nature reserve in return for cleaning up the pasture, used for years as a neighbourhood dump. The surplus value that was created inspired some neighbours to also open up their back garden, and many others followed. Over the years, the pasture acquired the status of an unofficial neighbourhood space, nurtured by shared responsibilities and shared pleasure.



FIGURE 10 Design of the house (renovation) and garden as a continuum. The garden is designed from the inside out as part of a continuum with the house. The house and plot, in turn, are 'unfolded' to the outside by a succession of outdoor and indoor spaces that are made publicly accessible in agreement with the household. In the front and back, two ripple zones are installed by the use of white curtains as flexible borders between private and public in the front garden and between inside and outside in the back garden. (Drawing by tc-plus. Reprinted with permission).

The side hedges were treated more subtly; they were lowered and undulated to promote interaction with the neighbours while maintaining a certain privacy. The reversibility of this intervention convinced the neighbouring plot owners to join this experiment; after all, it is easy to stop pruning the hedge and thereby reclose the gaps in case the increased interaction is no longer desirable. The front hedge was subject to a more daring experiment. Rather than deploying the more conventional strategies of hedge removal or hedge pruning, the client/designer hacked the neighbourhood by installing a freely accessible neighbourhood pavilion on his grounds, replacing the closing gesture of the front hedge. The neighbourhood pavilion was modular and subject to various experimental transformations (Figs. 11 a-d).

All of these experimental transformations culminated in a major intervention aimed at drastically reconfiguring the family's way of life. The experiences of the client/designer in Congo, Oeganda, Groenland, and Nepal, combined with a socially-oriented parenting mission, triggered the family's motivation to fundamentally reshape the boundaries of their living environment and to redevelop the site as a generous space opened up to the neighbours. The entire front and back gardens, as well as large parts of the house, were made publicly accessible (Figs. 10, 13, 14 a,b). Although the initial experimental neighbourhood pavilion was not visited much during its six years presence, it gained overall symbolic meaning, building trust among neighbours and setting an example of generosity. Whereas neighbours at first felt embarrassed entering the pavilion in the family's (private) garden, they now feel comfortable even with the open house. As such, G-lab succeeds in breaking the physical boundaries within the neighbourhood, as well as the mental confines of suburban life.



a The initial, experimental pavilion started as a rather abstract, empty space. In the search for a meeting place that suited the neighbourhood, the pavilion was reconfigured every six months to a year, for example into a field of mint used to offer mint tea to the neighbours. (Photograph by Tom Callebaut. Reprinted with permission).



b The most successful transformation was the conversion of the pavilion into a large table that was frequently used by the family and the neighbours. This last configuration of the pavilion already contains the main elements of the current design: the walls, the table, and their spatial location on the site. (Photograph by Tom Callebaut. Reprinted with permission).



c The front garden after the realisation of the final phase of the design in 2018. In front of the house is a petanque court, a fully public neighbourhood square. An eight metre long white curtain functions as a front door and can be opened or closed at any time. The opened curtain invites the neighbours into the shared outdoor and indoor spaces (Fig. 11-c), while a closed curtain functions as a front door (Fig. 11-d). (Photograph by Luc Roymans, 2018. Reprinted with permission)



d

FIGURE 11 Sequence of experimental neighbourhood pavilions in the front garden, leading to the current layout.



FIGURE 12 Hybrid inside-outside. Through the displacement and redefinition of typical elements, inside sometimes seems outside and outside sometimes seems inside. Access to the front outdoor rooms is provided by a white curtain, functioning as the front door when closed, and as an invitation to come in when opened. A doorbell is integrated in the green concrete wall of the outdoor room. The materiality of the walls refers to the original hedges: green coloured and with a wood print. In addition, other elements are used to reimagine the outdoor rooms as indoor, like a table with vase and flowers, carpet, frame on the wall, plants in pots. In summertime, the family practically lives outside. (Photograph by Luc Roymans, 2018. Reprinted with permission).

Hybridity: Malleable expressions of inside and outside, private and public

While in Flanders suburban houses are (stereo-)typically conceived as islands of privacy within an equally private green setting, G-lab promotes a more hybrid living environment where inside and outside are partly interchangeable, staging both private as well as public activity. To this end, the design explores the idea of spatial fluidity and flexibility.

Conceived by an interior architect, the garden is designed from the inside out as part of a continuum with the house. The house and plot, in turn, are 'unfolded' to the outside by a succession of outdoor and indoor spaces that are made publicly accessible in agreement with the household. To make this work, each of these spaces has a malleable expression and can accommodate many functions (open/intimate/enclosed, public/private). This flexibility is provided for by a careful combination of fixed and flexible architectural elements such as walls, curtains, and rearrangeable furniture (Figs. 12 a-d). The house unfolds into the front garden and further up to the street by means of two such malleable rooms, intimate and enclosed or fully open and inviting, depending on the inhabitant's intention (Figs. 12 a,b,d).



FIGURE 13 Hybrid private-public. The outdoor room in the front garden functions as an intimate outdoor living and meeting room, centred around one *Amelanchier lamarckii*. The *Amelanchier* was chosen because of its fragile silhouette and its seasonal richness: white blossoms, purple fruits, orange leaves, representing the change of seasons. The use of a terrace and pebbles is typical for Flemish front gardens, and gives this unconventional space a familiar touch. (Photograph by Luc Roymans, 2018. Reprinted with permission).

A freely accessible micro plaza with petanque court situated at the very front of the garden further overrides the traditional boundaries between private and public, between plot and street (Fig. 10). Additionally, at the back of the dwelling, three covered outdoor rooms make the transition from inside to outside (Fig. 12 c); the additional re-naturalisation of the back garden and the removal of its rear edge subsequently blur the transition between the private plot and the adjacent natural reserve.

At the smallest scale level, fluidity and flexibility are achieved by the displacement and redefinition of stereotypical elements belonging to either sphere, public or private, inside or outside (Figs. 12 a,b, d). The most striking example of such object displacement is the use of white curtains – usually an interior element – to flexibly demarcate a ripple zone between private and public in the front garden (Figs. 11 c,d), and between inside and outside in the back garden (Fig. 12 c). The permanent reconfiguration (opening and closing) of this adaptable border destabilises conventional boundary conditions. Furthermore, by using the same architectural element – the white curtain – to separate different outdoor spaces as well as outdoor and indoor spaces, the effect of a spatial continuum is achieved. An example of the redefinition of typical objects includes the construction of green concrete walls with wood print – reminiscent of a hedge, but with frames – referring to the inside – to define the outdoor rooms in the front, providing stability and security in contrast to the openness of the front door curtain (Figs. 12 a,b).

Scalar Paradoxes: Interplays of small-scale physical transformation and neighbourhood innovation

Whereas cross-scalar interactions in Finstraat mainly apply to the ecosystem (fauna and flora), G-lab strongly influences interhuman relations. The intention of the client/designer and his family to mean something for the neighbourhood includes the implicit wish to generate change. Inspired by the small actions of the client-designer, many neighbours removed their back hedges and fences to regain a view on

the nature reserve, and the owner of the pasture has shared access to his land. Recently, a neighbourhood picnic table and shared neighbourhood terrace have been installed there. Though mainly driven by personal gain (a better view), the accumulation of these many small actions (the removal of all these rear hedges) has transformed the pasture into a more generous place with a meaning and functioning for the neighbourhood (Fig. 15). The same logic applies to G-lab's front garden. As such, this design illustrates how a private initiative in a suburban fringe garden can become a motor of social change in a neighbourhood (Figs. 14 a,b).



a



b

FIGURE 14 Layout of invitations for a neighbourhood gathering (left) and neighborhood cinema (right) at G-Lab. Due to the hybrid inside-outside character, the intended use of the garden as a community place is strongly steered by daily and seasonal rhythms. The first year about 1000 people made use of the site at an average of four activities per month, including a wide range of bottom-up and top-down-initiatives, initiated by the owners as well as others. (Drawings by tc-plus. Reprinted with permission).

This project is all about initiating interactions between neighbours by means of sharing private property. Besides evolving neighbourhood dynamics, changing patterns of human activity also continuously challenge this intention. Thanks to its many adaptable elements, the garden fosters a low threshold to keep on initiating new social experiments. Dynamic and informal agreements with the neighbourhood consolidate this flexibility, lowered the threshold for discussion, and created an openness and willingness amongst the family, the neighbours, building contractors, and even the photographer involved. But working with fluid borders revealed thresholds relating to clear limits and regulations in formal procedures for receiving a loan, insurance, or building permit. These procedures tend towards capturing every detail in advance to prevent eventual unforeseen costs, which again was relieved by careful negotiations with the governmental and financial partners involved –once more levelling up the scope of G-lab's small actions.



FIGURE 15 Block party in the back garden, close to the adjacent pasture. A private initiative in a single garden can become a catalyst of social change in its neighbourhood. The accumulation of many small actions (the removal of rear hedges and fences, granting access to the land, helping out with the pasture management) transformed the pasture into a more generous place with a meaning and functioning for the neighbourhood. The back garden and pasture are gratefully used to host block parties. (Photograph by Tom Callebaut. Reprinted with permission).

Discussion and conclusion

The aim of our case study research was to gain insights into how *scalar paradoxes*, *hybrid qualities*, and *complex dynamics* simultaneously act as concepts of landscape design and analysis, and how that can help us to reframe, reimagine, and reshape gardens, to ultimately mobilise some of the powerful capacities of the garden complex.

Sources of landscape agency as fruitful concepts for landscape analysis and design

Both cases, Finstraat and G-Lab, are very different in terms of context and stakeholders, design concepts and strategies. As such, they illustrate well the heterogeneity enclosed within the garden complex and shed a different light on the aspects that make up the three sources of landscape agency. *Hybridity* was highlighted as a first source of landscape agency inherent to the garden complex. In Finstraat, the designer set up an open-ended framework for hybrid recolonisation of the site, thereby breaking the nature-culture dichotomy. In G-lab, the client/designer/researcher hybridised the binaries of private and public, inside and outside, by challenging their borders as well as their typical definition through architectural elements. The cases demonstrate how hybridity engenders both simultaneity and versatility. *Scalar paradoxes* were highlighted as a second source of landscape agency. Here, both cases also offer complementary insights: Finstraat brings in spontaneous vegetation from the surroundings as part of the autonomous multiplication of urban green pockets in the neighbourhood. A reversed gesture is present in G-lab, with a generous movement from inside the house to outside in the garden, as well as from the outside neighbourhood, into the private plot. The third source, *complex dynamics*, centralises the ongoing interactions between human and non-human agents, elements, and processes that continuously reshape our environments. In Finstraat, the co-evolution of natural vegetation dynamics and human occupation patterns is framed spatially and temporarily, whereas G-lab provides an experimental framework for social change shaped by a negotiable and adaptable architecture. Although solely considering two gardens, our explorative research already exposes a broad spectrum of design strategies to work with hybridity, scalar paradoxes, and complex dynamics: the development of an open-ended or experimental, spatiotemporal framework, near mannerist point-wise interventions, as well as explorations of accessibility through the continuous negotiation and redefinition of border conditions. The two cases also illustrate how interplays of minor incremental changes and major shocks continuously redefine a garden's condition and therefore also the context in which hybridity, scalar paradoxes, and complex dynamics thrive.

The power within: a plea for reframing, reimagining and reshaping individual gardens

However small-scale and singular their character, both case-study gardens currently contribute to the social, cultural, and/or ecological characteristics of their surroundings, including habitat provision for spontaneous vegetation and micro-climate regulation in Finstraat, and the creation of semi-public space and neighbourhood innovation in G-lab.

This surplus creation has not always been present. Finstraat used to be a concrete parking lot where the sparse spontaneous vegetation was basically a sign of human neglect, whereas the layout of G-lab with a lawn and surrounding hedges made it a typical suburban garden, private and inwardly oriented. Through design, experiment and intervention, both gardens were reframed, reimagined, and reshaped – from parking lot to urban nature; from domestic garden to neighbourhood space. Nowadays, both gardens can be considered exceptional places in terms of how they contribute to their surroundings, but also in terms of how they update our way of looking at, and designing with, domestic gardens in our contemporary condition

– that of the landscape metropolis. Moreover, in doing so, these gardens actualise the very substance of the landscape metropolis, further re-arranging city and landscape into a complex and hybrid urban-landscape system (de Wit & Dekker, 2020); Finstraat does so by importing natural features into its inner city, while G-lab facilitates a more communal/urban lifestyle into its suburban street.

Unlock landscape agency by re-imagination

Arguing that we studied only two of the more than two million domestic gardens present in Flanders, we wonder what the full potential of reimagining the garden complex could mean for the landscape metropolis. If designing with hybridity, scalar paradoxes and complex dynamics can leverage the impact of a single garden to contribute to the wider society, culture, as well as the ecosystem, what would it mean if we were to deploy these sources of landscape agency in garden and landscape design in five percent or even a quarter of all gardens? The power of the garden complex as a landscape agency lies in its emergent properties. After all, the accumulation of many small actions, performed in many single gardens, over time accrues to a significant effect on the wider landscape metropolis. Objections often refer to private ownership and almost full freedom in design, layout, and management of gardens as an ideal context for the tyranny of small decisions (Goddard, Dougill, & Benton, 2013; Dewaelheyns et al., 2016). But the resulting heterogeneity and fragmentation within the garden complex also put its plurality, multiplicity, diversity, adaptability, and diffusion to the fore.

Incremental changes as the result of spontaneous, autonomous (Antrop, 1998) or unplanned processes (Anstey, 2009) – even if they appear solely at the scale of a single parcel (Primdahl, 2010) – reshape places. So does the landscape imagination. By placing our emphasis on the garden complex, we have already started to change your imagination of the landscape metropolis. We illustrated how gardens – small singularities of private property that are considered meaningless from a top down perspective – do contribute to their wider surroundings, besides being valued highly from the household perspective.

We believe that each of the sources for landscape agency – *hybridity*, *scalar paradoxes*, and *complex dynamics* – offers added value for the individual garden itself, for the garden complex as well as for the landscape metropolis. The two cases demonstrate that hybridity entails versatility, simultaneity, and multiplicity, thereby engendering a richness of meaning and experiences. Clear-cut spatial definition and categorisation is replaced by a multitude of voices, values, and attitudes. This pluralism is also inherent in the scalar paradoxes we observed. The large degree of freedom we enjoy in planning and managing our own garden, inevitably results in many different garden visions and many different garden agencies. However, their cross-scalar interactions evoke design implications that transcend the confines of the private plot, surpassing individual, human gain and the willy-nilly, making individual gardens enter into negotiation with each other and with their surroundings. Finally, thanks to their adaptability and flexibility, continuously renegotiating the complex dynamics at play, the two case studies prove that a garden can be a driver of change and innovation and thereby a valuable source of resilience.

To conclude, our case study exploration offered the proof of need for the landscape imagination to focus on the garden complex. Reimagining the garden complex as a way to start addressing its vital capacities is especially urgent. Urban challenges are skyrocketing and garden complexes risk disappearing or face critical change due to densification, environmental stress, and shifting lifestyles. To begin with, we need a wider and deeper understanding of the sources of landscape agency inherent within the garden complex, as well as a more constructive imagination of the productive forces and operational modes that enable their interplay. A further exploration of landscape design strategies that enable these forces to gain momentum is needed for the garden complex to become a powerful ecological, cultural, and social agency within the contemporary landscape metropolis.

Acknowledgments

The authors would like to thank SPOOL and its theme issue editors Saskia de Wit and Andre Dekker for providing a platform to explore and discuss the role of gardens in the landscape metropolis. We are very grateful to two anonymous reviewers who challenged us in improving and focusing our contribution. We especially want to thank designers Geert Meysmans and Tom Callebaut for generously sharing their design experiences as well as their enthusiasm for collaborating. Finally, we thank the architectural office ectv and tc-plus, and the photographers Luc Roymans and Hilde D'haeyere for granting the use of their pictures.

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Amidst Things

A more-than-Human Garden for Nonhuman Species and their Human Companions

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Abstract

This visual essay explores the making of a new garden in a small secluded space deep within Danish housing estate Farum Midtpunkt. Through a series of digitally produced drawings the author unfolds origin and current material condition of the site in question, and speculates on the site's possible future as a new garden for humans and the landscape metropolis's unnoticed animals and plants. The design approach for the new garden is experimental, maintenance-based and open-ended, aiming to achieve a high level of biodiversity and to balance preservation and renewal attending to the site's legacy and pre-existing qualities.

Keywords

post-war social housing, transformation, more-than-human garden, things, nonhuman species

DOI

<https://doi.org/10.7480/spool.2020.1.5482>

Introduction

Nonhuman things, such as plants, soils, asphalt surfaces, animals, heavy construction equipment, maintenance plans and various technologies are profoundly and actively involved in the dynamic socio-material and -spatial processes of the landscape metropolis. However, despite the crucial role of nonhuman things in the continuous formation of the metropolitan landscape, their existence and agency are widely overlooked. Furthermore, in this age of the Anthropocene, we are witnessing an unprecedented human-caused mass extinction of non-human species (Ceballos, Ehrlich, & Dirzo, 2017; Grooten & Almond, 2018). While unnoticed by most humans, such nonhuman species can, and do, still reside among us, even in the most constructed and densely built areas.

How to encompass and become more attentive to the things and nonhuman species, amongst which we live, is a challenge. Gardens specifically for human and nonhuman encounters, where the landscape metropolis's unnoticed animals and plants can reside, could be one solution. Not only can small gardens help to compensate for the negative effects of urbanisation on biodiversity (Fontaine, Bergerot, Le Viol, & Julliard, 2016; Goddard, Dougill, & Benton, 2010), they also have the capacity to make hidden qualities in the metropolitan tissue perceivable (Wit, 2013). A vital approach to developing such gardens is to investigate how things, humans, and the many other species occupying the world, are dynamically involved in the continuous formation of sites within the metropolitan landscape.

This visual essay follows the steps of making a new secluded and experimental garden for animals, plants, and human beings deep within the brutalist development known as Farum Midtpunkt, built in the 1970s. A densely built housing estate in a thoroughly human-made and constructed landscape, Farum Midtpunkt comprises 1650 dwellings that house 4000 people, and is located in the town of Farum in the northwestern part of the metropolitan area of Copenhagen, Denmark.

I use digital collage-drawing to unpack the actors and processes that are involved with a small secluded space tucked away between two apartment buildings in Farum Midtpunkt. I examine the space's material origin, its initial design as a children's sand and water playground, as well as its current material state and use as a dog park for Farum Midtpunkt's smallest dogs. Local residents recently suggested that the space be thoroughly renewed with no attention paid to the site's legacy and pre-existing qualities. As an alternative, I reinterpret the space as a new experimental and secluded garden which simultaneously reveals the constructed origin as well as the autonomously emerging, but often unseen, organisms of a site in a densely built area. In this new garden, the smallest, and often unnoticed, nonhuman inhabitants of the landscape metropolis can freely reside and meet humans in a new human-nonhuman social situation.

The design approach for the new garden is experimental, maintenance-based and open-ended, in line with Gilles Clément's idea of "a garden in movement". The intent in a garden in movement is to achieve a high level of biodiversity, to respect how species settle autonomously and favour the living over form. The maintenance of such a garden is treated as a way to design it, and the gardener attempts to do as much as possible with minimal means (Clément, 2015; 2017; Rocca, 2008). Analogous to Clément is landscape architect Martí Franch, whose works, produced through direct engagement with the sites (Franch, 2017; Waterman, 2017), also serve as a valuable reference and reminder of how maintenance can be successfully used as a design approach. Accordingly, the implementation of a maintenance and management plan, which prescribes the gardener's work, signals the new beginning for the site in question as an experimental garden. The maintenance and management plan proposes to reuse the material factors already on site, to reintroduce some original design features as well as to enhance existing material and biological processes. Decaying leaves and deadwood collected in autumn in the Farum Midtpunkt housing estate are strategically placed to provide shelter for insects.

Existing self-sown plants are conserved while insect-friendly native seedmixes of annual and ruderal plants are spread in the first year to further encourage insects to find a home in the garden, and thus attracting birds to nest. Every year, central parts of the garden's surface are cleaned using a high-pressure washer to create a contrast with the moss-covered parts of the asphalt surface. The proposed maintenance and management plan creates a starting point for the new garden that should be renewed every 5th year, thereby attending to the still unknown future trajectory of the garden. Paying attention to the nonhuman things and species among us provides productive perspectives and points of attention for future transformation projects that balance preservation and renewal, as well as the needs of all living beings.

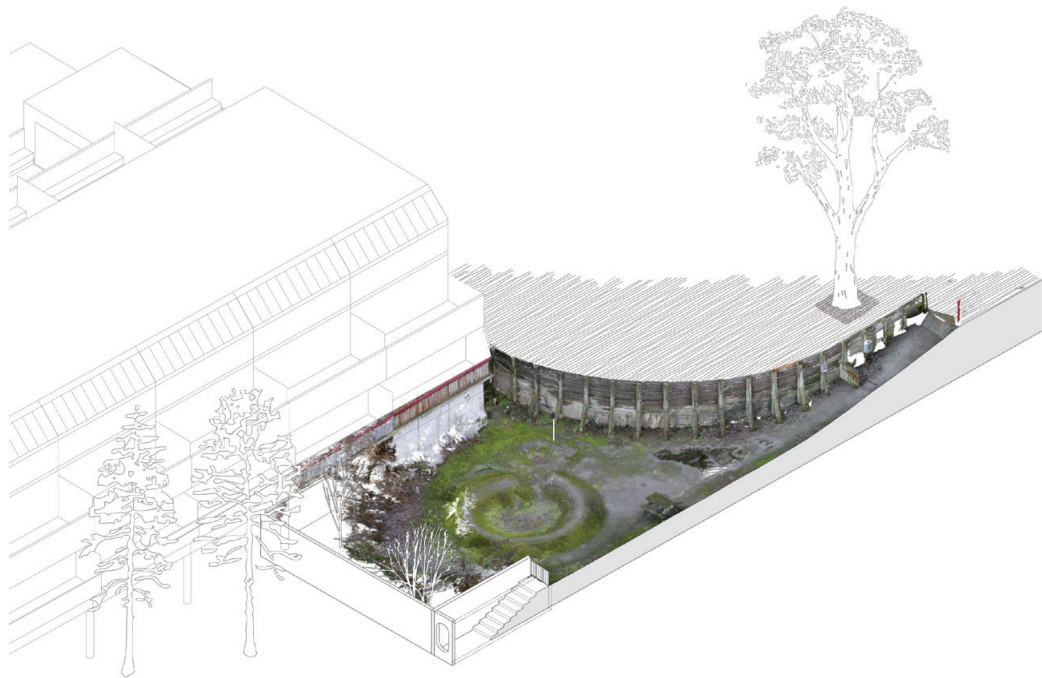


FIGURE 1 The site of today. Sunken between two apartment buildings and bounded by a wooden wall to the north, the site of the proposed new garden is largely hidden from any outside view. Today the site is a little-used dog park, but the weathered and moss-covered features of the original children's playground are still visible.



FIGURE 2 Interstitial open spaces in Farum Midtpunkt. The Farum Midtpunkt housing estate is a densely built and constructed landscape in which buildings are interwoven with open spaces in a complex topographic megastructure. The site for the proposed garden is one among many interstitial open spaces, initially conceived for various community purposes for the housing estate’s residents (Aerial photo source: Danish Agency for Data Supply and Efficiency)



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FIGURE 3 A new secluded garden in Farum Midtpunkt. From the air, in the context of the Farum Midtpunkt housing estate and the urban landscape northwest of Copenhagen, Denmark, the site for the new garden appears small and hidden. (Aerial photo source: Danish Agency for Data Supply and Efficiency).

Prologue

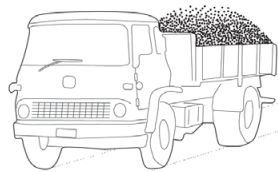
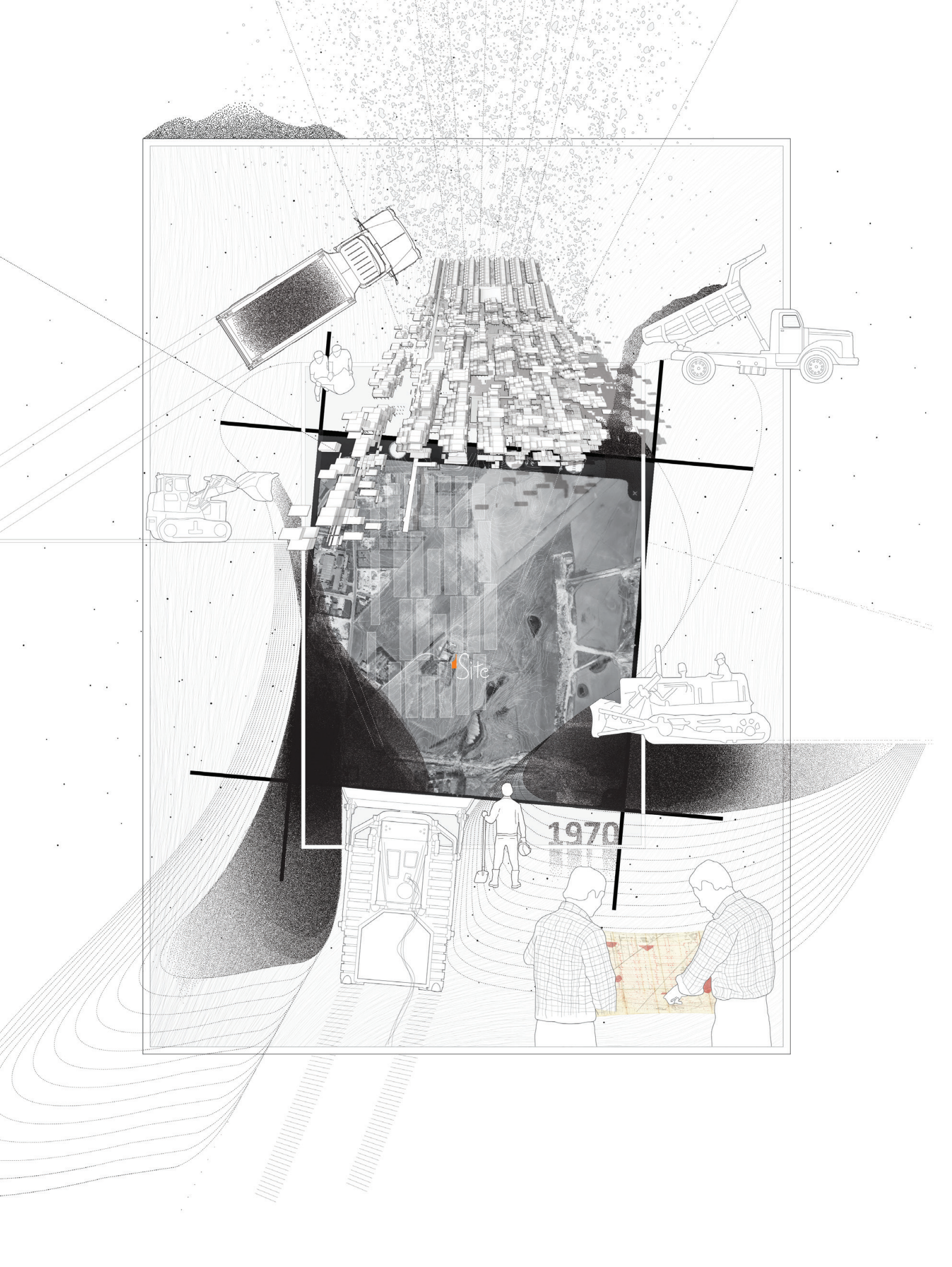


FIGURE 4 Levelling the Landscape, 1970. With the help of bulldozers, excavators, and dump trucks, the gently rolling hills north of Farum Town were flattened and the water ponds filled in, in preparation for the construction of the Farum Midtpunkt housing estate. The terrain was entirely remodelled, leaving very few traces of the past landscape.



Site

1970

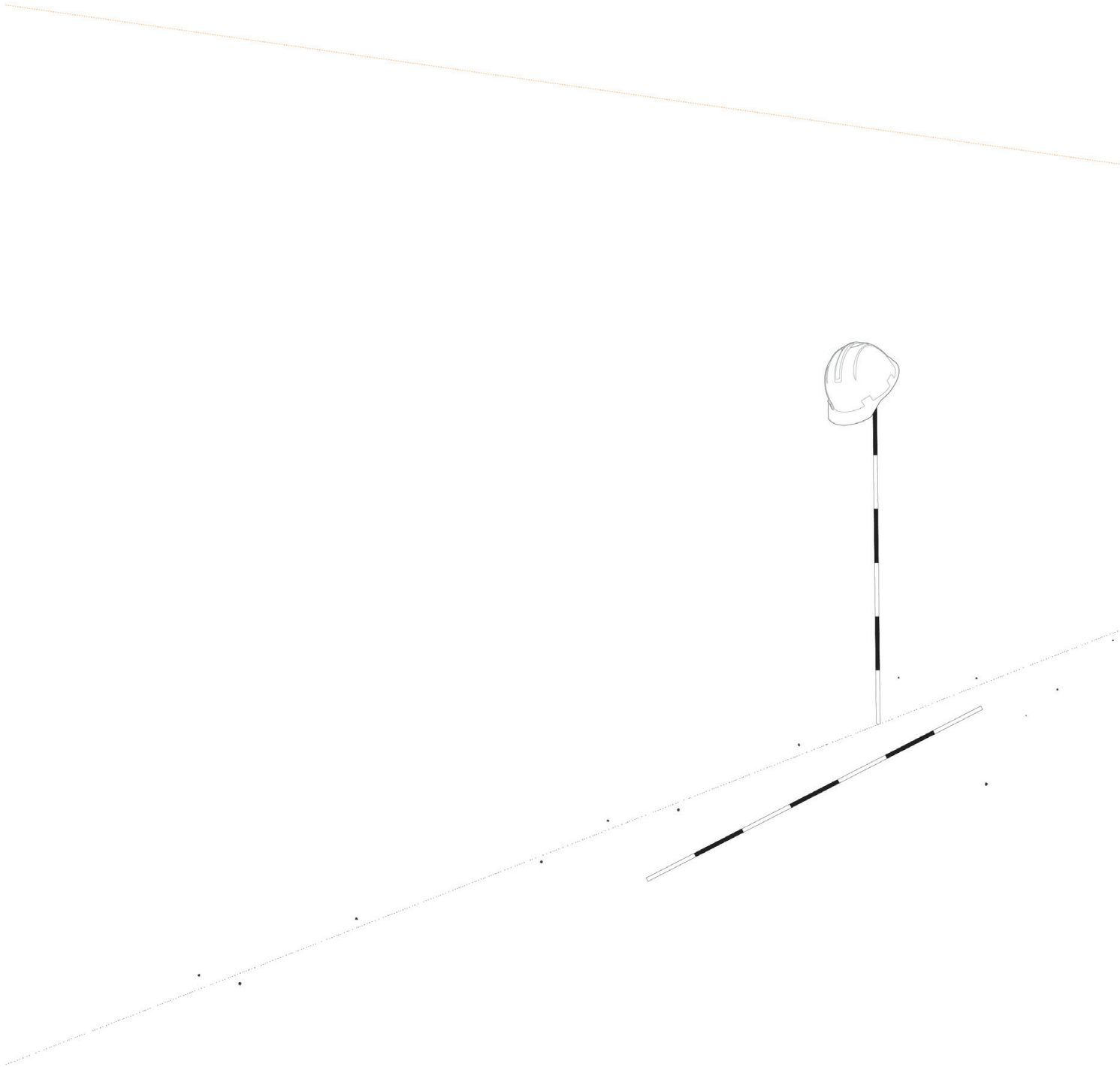
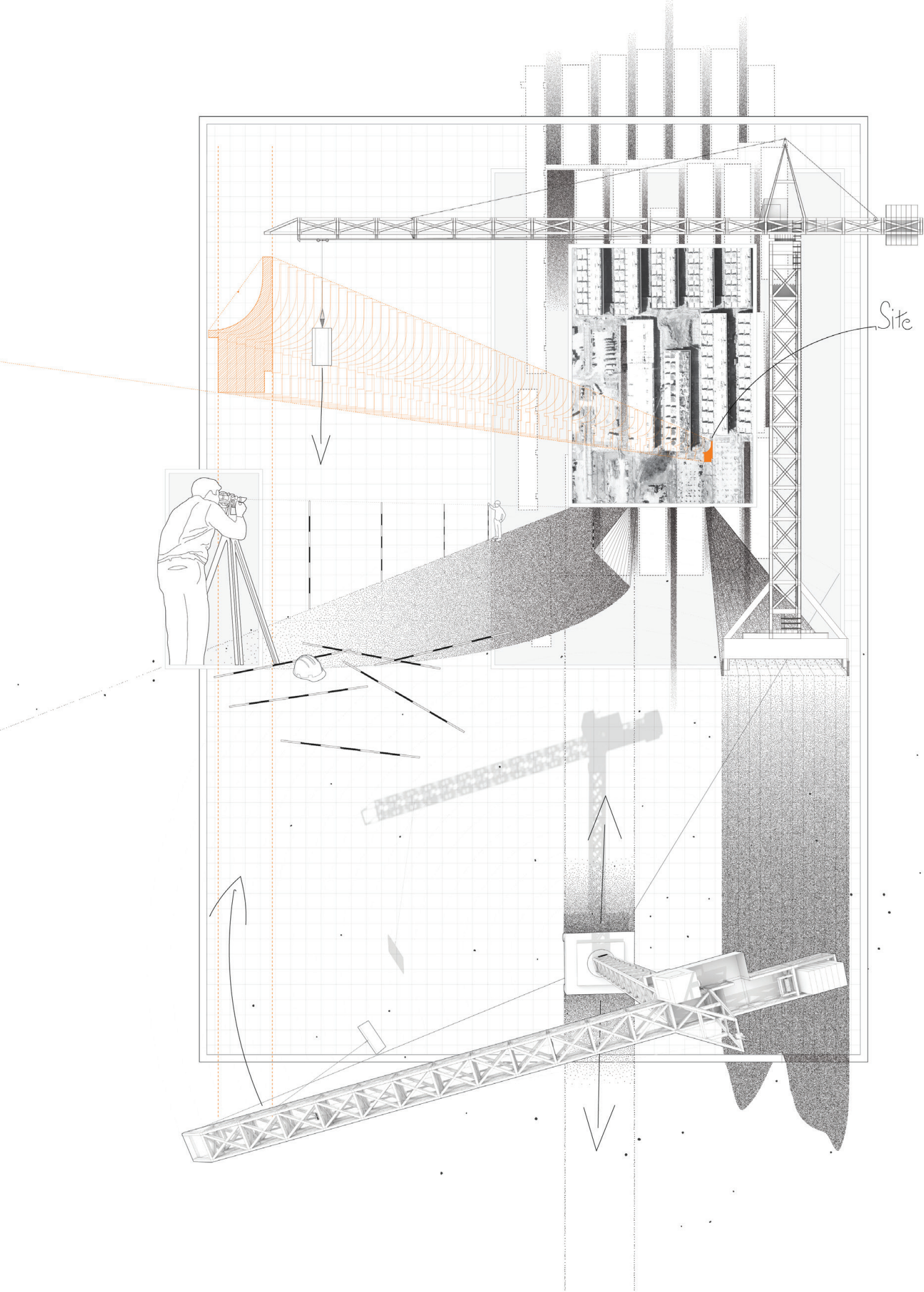


FIGURE 5 Crane Tracks, 1971-74. The logics of modular building and prefabricated construction techniques defined the layout of Farum Midtpunkt. At a fast pace, travelling tower cranes assembled the buildings of concrete and corten steel in the now largely flattened landscape. The small secluded space was planned at a spot between two flattened terraces in which the travelling tower cranes once operated.



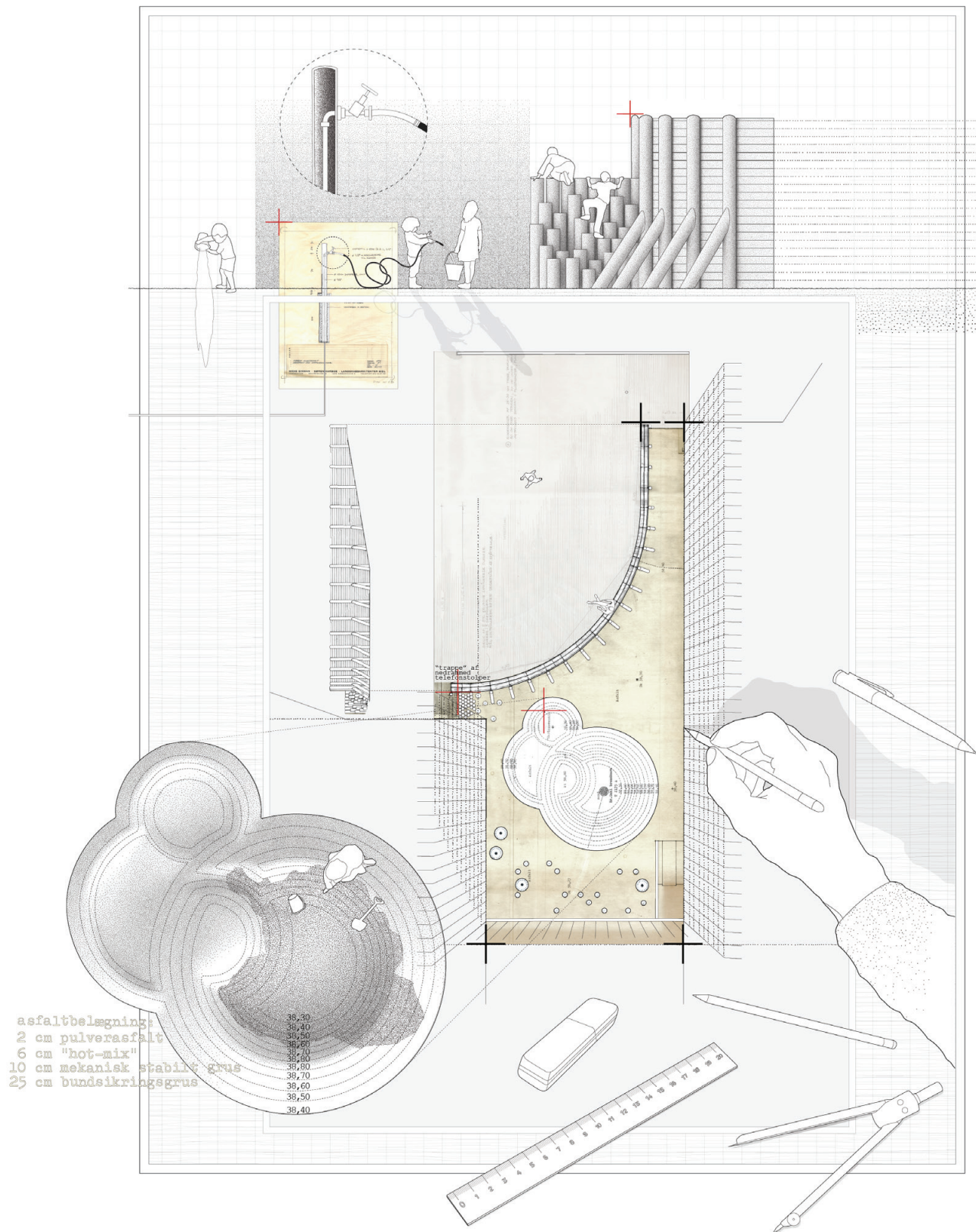
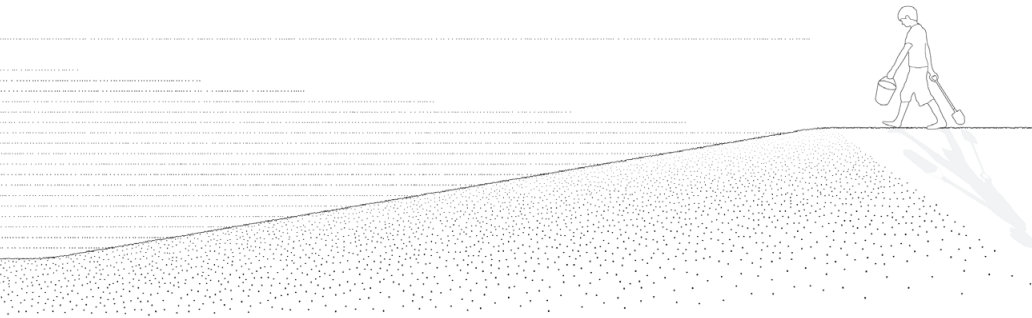


FIGURE 6 The sand and water playground, 1971-73. Ideas about child welfare informed the original design of the secluded space. A contoured asphalt surface was equipped with a water tap as well as seating and a climbing wall made from discarded wooden telephone poles. The landscape architect drew the design for the area by hand using a range of tools.



As Found Today

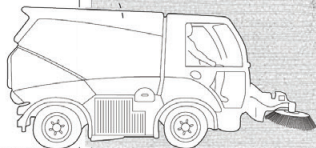


FIGURE 7 The state of the site today. Original features are still present, including the asphalt surface, the water tap's foundation and some rotten remains of the wooden telephone poles. Self-sown plants occupy the cracks along the edges and grow well in the remains of the wooden telephone poles. The contoured asphalt surface is partly covered with moss. The elements added for the dog playground include a bench and a bin for dog excrement.

Hundelejeplads Kun til hunde under 10 kg.

(Translation: "Dog playground
Only for dogs below 10 kilos")

Too big
to enter



Self-sown Plants
in cracks along
edges

Wooden
telephone poles

Disused Water tap
Tap head missing

Drain

Bench

Self-sown Plants
in cracks along
edges

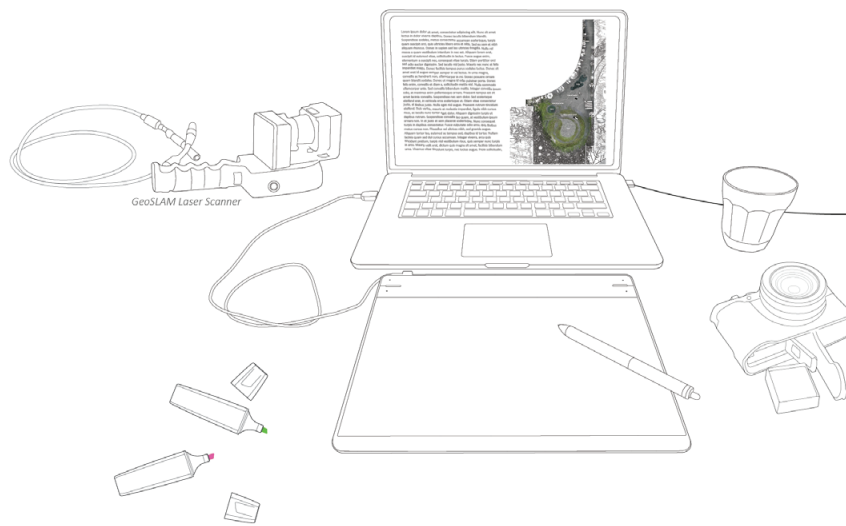
Dandelion
(*Taraxacum distinctilobum*)

Small-flowered crane's-bill
(*Geranium pusillum*)

Moss covered asphalt

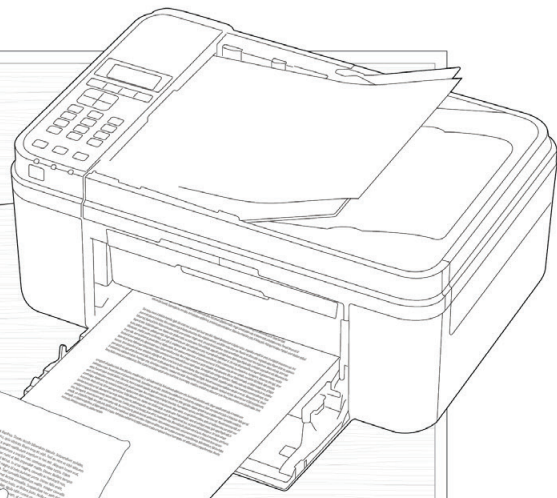
Self-sown Plants
on humus Soil





Into The Future

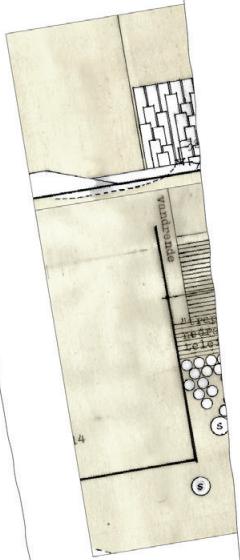
FIGURE 8 Making a garden through maintenance. Maintenance plans are powerful instruments. The new maintenance and management plan should be renewed every 5 years. The new plan seeks to preserve the qualities already at hand by protecting self-sown plants, and encouraging other nonhuman species like insects to find a home in the garden by enhancing ongoing material and biological processes.



...enormous effort of work before it could be done. ...

Appendix - Insect-friendly seed mixes of annual plants
 Insect-friendly seed mixes of annual plants are to be sown in the ...
 Four different mixes are proposed:

Restoration works



Maintenance and restoration works

More-Than-Human Garden – maintenance areas:
 I Free succession/no cultivation but during autumn with deposition of leaves and deadwood collected from other parts of Farum Midtpunkt. Use leaf blower and leaf rake.

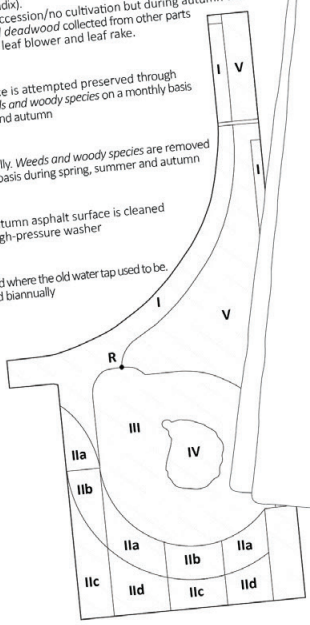
Ila, Iib, Iic, Iid
 -Year 1: Maintenance staff plant insect-friendly seed mixes of annual plants in assigned areas (see appendix).
 -Following years: Free succession/no cultivation but during autumn with deposition of leaves and deadwood collected from other parts of Farum Midtpunkt. Use leaf blower and leaf rake.

III
 Moss on asphalt surface is attempted preserved through manual removal of weeds and woody species on a monthly basis during spring, summer and autumn

IV
 Sand is replaced annually. Weeds and woody species are removed manually on a weekly basis during spring, summer and autumn

V
 During spring and autumn asphalt surface is cleaned biannually using a high-pressure washer

R
 New water tap installed where the old water tap used to be. Functionality checked biannually



MAINTENANCE AND MANAGEMENT PLAN

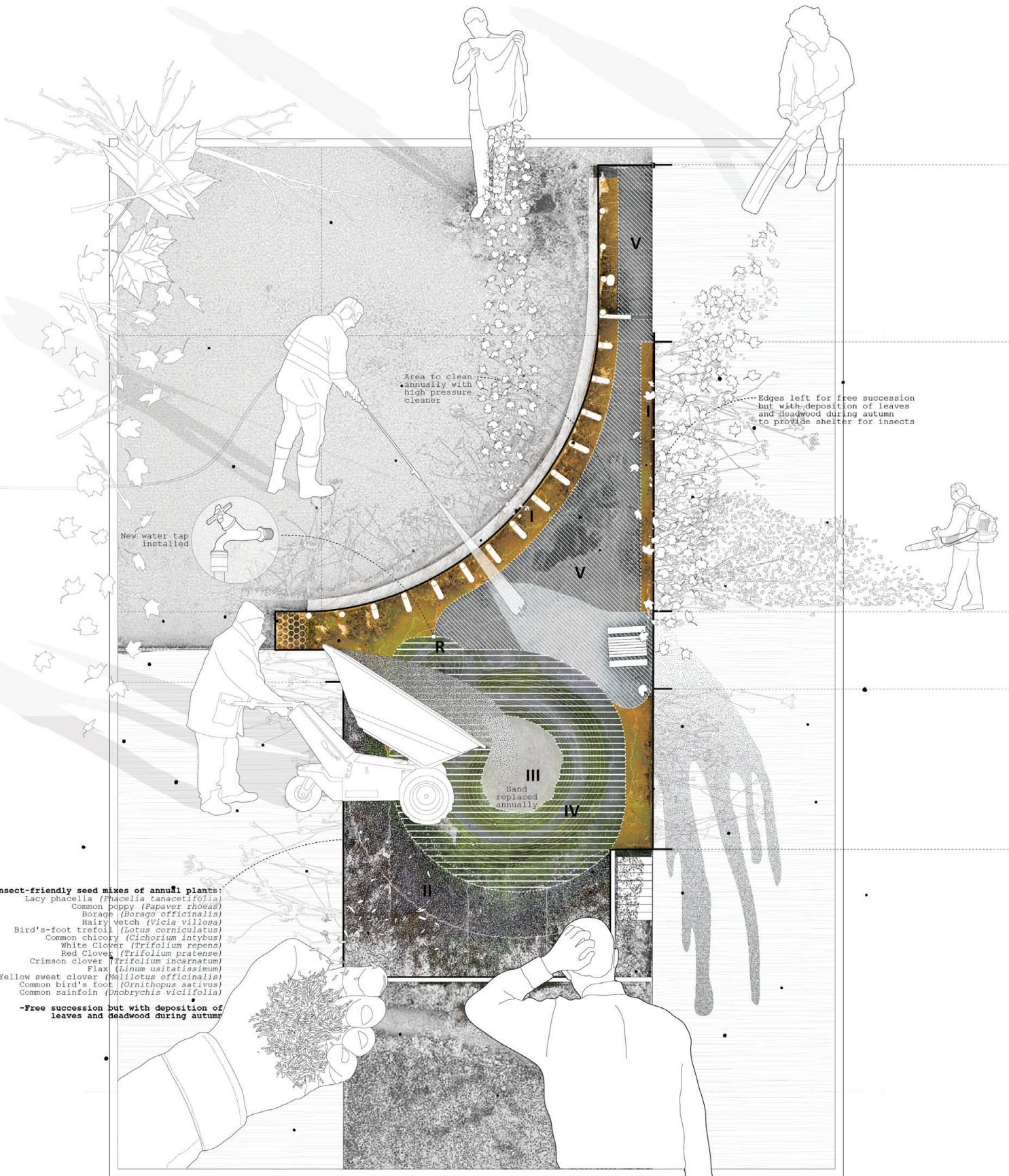
THE MORE-THAN-HUMAN GARDEN
 For nonhuman species and their human companions



TO BE RENEWED 2025, 2030, 2035, ...
AFTER DISCUSSION WITH STAFF
 (SITUATED BETWEEN APARTMENT BUILDING no 14 AND 15)



FIGURE 9 Maintenance and management plan in action. Most areas are left for free succession, but in the autumn, decaying leaves and deadwood are collected from other parts of the housing estate and placed along the edges to provide shelter for insects. Every year, the central parts of the garden are cleaned using a high-pressure washer to create a contrast with the moss-covered surface.



Area to clean annually with high pressure cleaner

New water tap installed

Edges left for free succession but with deposition of leaves and deadwood during autumn to provide shelter for insects

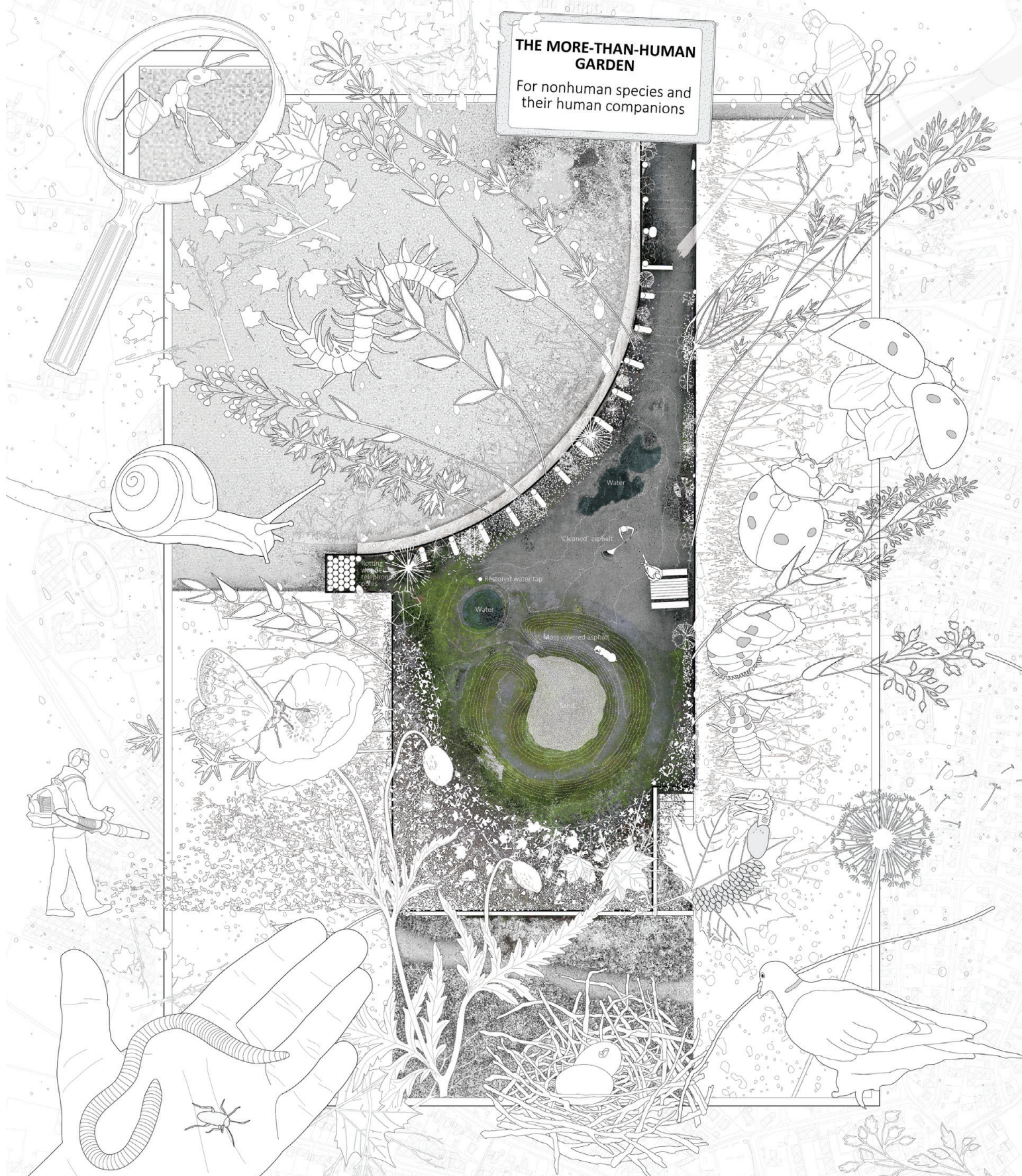
Sand replaced annually

-Insect-friendly seed mixes of annual plants:

- Lacy phacelia (*Phacelia tanacetifolia*)
- Common poppy (*Papaver rhoeas*)
- Borage (*Borago officinalis*)
- Hairy vetch (*Vicia villosa*)
- Bird's-foot trefoil (*Lotus corniculatus*)
- Common chicory (*Cichorium intybus*)
- White clover (*Trifolium repens*)
- Red clover (*Trifolium pratense*)
- Crimson clover (*Trifolium incarnatum*)
- Flax (*Linum usitatissimum*)
- Yellow sweet clover (*Melilotus officinalis*)
- Common bird's foot (*Ornithopus sativus*)
- Common sainfoin (*Onobrychis vicifolia*)

-Free succession but with deposition of leaves and deadwood during autumn





THE MORE-THAN-HUMAN GARDEN
 For nonhuman species and their human companions

FIGURE 10 A new human-nonhuman sociality. Building upon the legacy of the site as a space for estate's residents, first children and then small dogs, and using the existing materialities as the starting point for the transformation, the new secluded garden is for all small living things and for the humans that may accompany them.



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Land of Chabot

A Highway Landscape as a Monument to a Painter

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Abstract

In the contemporary metropolitan landscape of Rotterdam, the open landscape spaces that once surrounded the city have been reduced to components in a hybrid field. When the polders were still expansive, with an omnipresent horizon, and big skies, they were depicted extensively by the Dutch landscape painter Henk Chabot (1894-1949). Chabot is the Rotterdam painter of an oeuvre that is associated with angular, realistic expressionism of many layers of paint in hard colours, who painted heavily emphasised skies over poor countryside, or monumental portraits of refugees or farmers. For fifteen years, he lived and worked in a studio by the river Rotte. Now, only a relic of the farmland where he lived remains: an interstice between motorways, recreation parks, and suburbs that seemed to be overlooked in the frenzy of urban planning processes. The reason this interstice still exists is that it has been reserved for a future motorway for the last 30 years, and in the not-so-distant future will become the tunnel entrance for the new A16 motorway. As a left-over space, the terrain seems non-descript. However, it does have the implicit characteristics of a 'landscape theatre': introducing the processes and the scale of landscape as self-evident elements of the city, and heralding the open polder landscape twenty minutes away. It borrows its physical boundaries from the Rotte river dyke, the heemtuin (botanical garden) adjacent to the Ommoord apartment blocks, the access road to Ommoord, the industrial estate, and residential area in Terbregge. Such a "borrowed boundary" can be seen as a defining trait of the landscape theatre. The open space that is defined by this borrowed boundary and the central point of the tunnel entrance, is a secluded, self-contained place, removed in time and space, insulated against the everyday reality and, aside from the public realm of streets, squares, and parks, from the hustle and bustle of urban life: a place "outside".

Keywords

Land of Chabot, interstitial space, metropolitan garden, Henk Chabot, highway, landscape theatre

DOI

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Introduction

In the contemporary metropolitan landscape of Rotterdam, the open landscape spaces that once surrounded the city have been reduced to components in a hybrid field. As Bijlsma and Bakker wrote when discussing the work of the Dutch landscape painter Henk Chabot (1894-1949), the polders that he depicted extensively were still expansive, with an omnipresent horizon, and big skies. Chabot is the Rotterdam painter of an oeuvre that is associated with angular, realistic expressionism of many layers of paint in hard colours, who painted heavily emphasised skies over poor countryside, or monumental portraits of refugees or farmers. For 15 years, he lived and worked in a studio by the river Rotte (Bijlsma & Bakker, 2012).

Now, only a relic of the farmland where he lived remains: an interstice between motorways, recreation parks, and suburbs that seemed to be overlooked in the frenzy of urban planning processes. The reason this interstice still exists is that it has been reserved for a future motorway for the last 30 years, and in the not-so-distant future will become the tunnel entrance for the new A16 motorway.

As a left-over space, the terrain seems non-descript. However, it does have the implicit characteristics of a 'landscape theatre': introducing the processes and the scale of landscape as self-evident elements of the city, and heralding the open polder landscape twenty minutes away. It borrows its physical boundaries from the Rotte river dyke, the heemtuin (botanical garden) adjacent to the Ommoord apartment blocks, the access road to Ommoord, the industrial estate, and residential area in Terbregge. Such a "borrowed boundary" can be seen as a defining trait of the landscape theatre. The open space that is defined by this borrowed boundary and the central point of the tunnel entrance, is a secluded, self-contained place, removed in time and space, insulated against the everyday reality and, aside from the public realm of streets, squares, and parks, from the hustle and bustle of urban life: a place "outside".

The tunnel project might mean the end of this remnant of open space, or it could be the moment at which a sensitive design intervention can expose the hidden qualities of this meadow. In 2018, the Chabot Museum in Rotterdam commissioned the artist group Observatorium to reflect on a monument for the painter near the location of his studio on the dyke along the river Rotte. Familiar with the work of Observatorium, director Jisca Bijlsma did not expect a sculpture or a plaque, but a design for a landscape that offers an invitation to stand still and see through the eyes of Chabot.

One of the conclusions of a workshop with all parties involved was the (re) naming of this terrain to "Land of Chabot", bringing back to life a long-forgotten toponym, coined by people who had a warm heart for the painter. "Words alone [...] can have the power to render objects, formerly invisible because unattended, visible, and impart to them a certain character." (Tuan, 1991, p. 684)

Next, Observatorium followed up on the other important suggestion to do as little as possible, keeping the meadow a meadow under the condition of free access. The artists proposed a series of acupunctural earthworks, sculptures, and a pavilion as *lieu de memoire* for the Land of Chabot, as an ode to his work and his view of the distant expanses of Dutch landscape in the midst of the suburban potpourri. Two years later, the future of the Land of Chabot is still undecided, but we might try to imagine the effect if such an intervention were to take place. The "borrowed boundary" creates the enclosure which helps us to read the space as a garden, with the subtle artworks as its attributes. These marks transform the space into a garden, they direct the view and make the visitors aware of their sensory perception, they expose the space as a valuable landscape. The mouth of the tunnel might become the centre piece of this space, like a grotto connecting the sky and the underground.

The sculptural and architectural scenography constitute a sequence from visual panorama to sensory experience of “wilderness”, sky and underground, seducing the passer-by to experience this landscape by moving through it. Movement brings the landscape qualities close, transforming the visual perception of space into a multi-sensory engagement with “place,” where location, locale, and memories live, and all components of this metropolitan landscape are exposed: city, landscape, and infrastructural landscape. “In the city, the vastness of the sky is only to be experienced occasionally. Here, it surrounds you and lies like a roof over the Land of Chabot. On a good day, clouds and sun, it’s magic realism.” (Observatorium, 2019, p. 39)

Inviting a close observation of the surrounding landscape, the design aims to draw attention to Chabot’s landscape painting. Those who withdraw from the flux of life, as the painter did, see the world moving around them. As Steenbergen described the notion of the landscape theatre, this void between the urban tissues could enable the apprehension of landscape space by bringing it within the visual, physical, and conceptual scope of the city dweller, standing face to face with natural processes, the *longue durée* of evolution and natural growth, silence, and emptiness (2011, p. 422). It is the quality of “outside” that is celebrated here, “disjointed from the spatial structure of the programmed city, from function and direction, from the regulated space of society, from the generic reality of the metropolitan condition, from the ‘everywhere.’ [...] The quality of ‘outside’ which can be found in the cracks of the metropolitan tissue thus can [be] transformed, translated and made expressive into perceivable space [...] As an architectural elaboration of the specific characteristics of the interstice—the outside, the other space, the in-between—the metropolitan garden can create its own conditions to expose specific landscapes. Using the generative structure of the landscape, it marks access points to the genius loci within the metropolitan landscape, connecting them.” (De Wit, 2018, p. 369-371)

The design is brought to the attention of the urban planners and welcomed as valuable research and design. As a citizens’ initiative, its aim is to change the view of the urban planners and to negotiate between a functional layout and landscape of imagination and memory. The design and process are an example of Observatorium’s motto “First art, then urban planning” and as such, it has already fulfilled its promise.



FIGURE 1 Fire of Rotterdam, 1940. The painter Henk Chabot stands with his work in a rich tradition of Dutch landscape painters. He captured the Dutch landscape in a special way, contrasting small flat forms under a low horizon with large volumes in the skies. The turbulent sky above the calm earth was his theme. (Painting by Henk Chabot, 1940. Oil on canvas, 120 x 140 cm, Collection Chabot Museum Rotterdam / long-term loan Municipality of Rotterdam.)





FIGURE 2 House of Henk Chabot. In his dyke house and studio on the Rotte, surrounded by the polders, he painted a large number of monumental landscapes from 1934 until his death in 1949. (Collection Chabot Museum Rotterdam)



FIGURE 3 View of the river Rotte and the polder from where the painting studio stood. In the photograph components of Chabot's paintings are recognisable: river, dyke, row of houses, roof landscape, and overarching sky - the components of a landscape theatre. (Photograph by Observatorium, 2020)



FIGURE 4 Telephone poles along the Rotte. In Chabot's monumental paintings, slightly slanted telephone and lantern poles appear again and again. They attach the land and the sky, and direct the eye to the distance. These poles appear here and there along the Rotte and indicate very precisely the amount of subsidence of the land. (Photo by Observatorium, 2020)

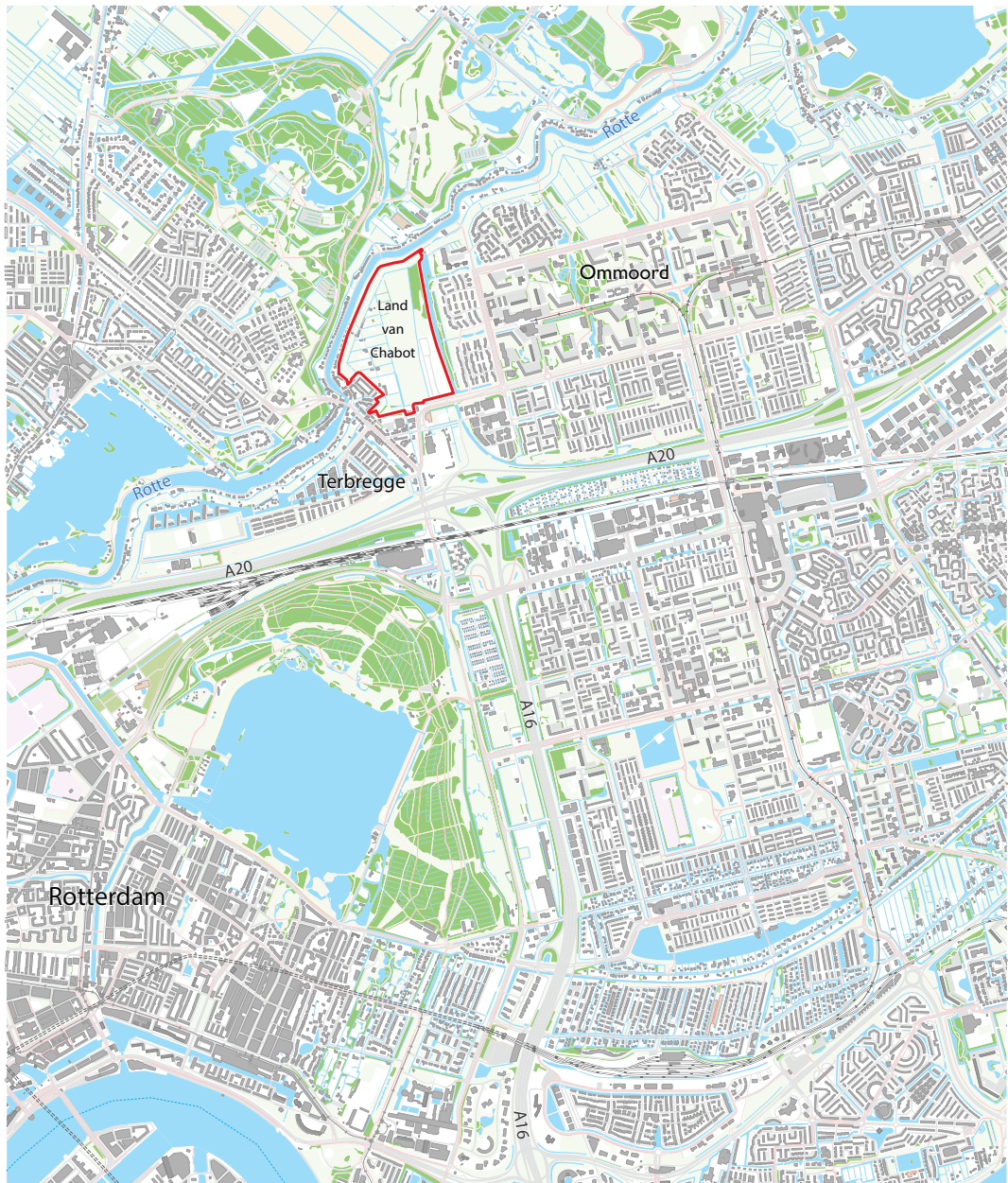


FIGURE 5 Location of the design area between recreation area, village, suburbs, and highway. Most of the surrounding residential areas were built in the 1960s and 1990s in an extensive peat meadow area, two to seven metres below sea level. Almost the entire area was used for peat extraction, creating the large lakes. Bottom left is the bend in the river Maas in the centre of Rotterdam, the motorways connect Rotterdam to Breda in the south, Utrecht in the east, and The Hague in the west. The leftover piece of land on the river Rotte had already been reserved in the 1970s for an extension of the motorway, and was used as municipal storage, amongst other things. (Image from [openstreetmap.org](https://www.openstreetmap.org), edited by Michiel Pouderooijen)

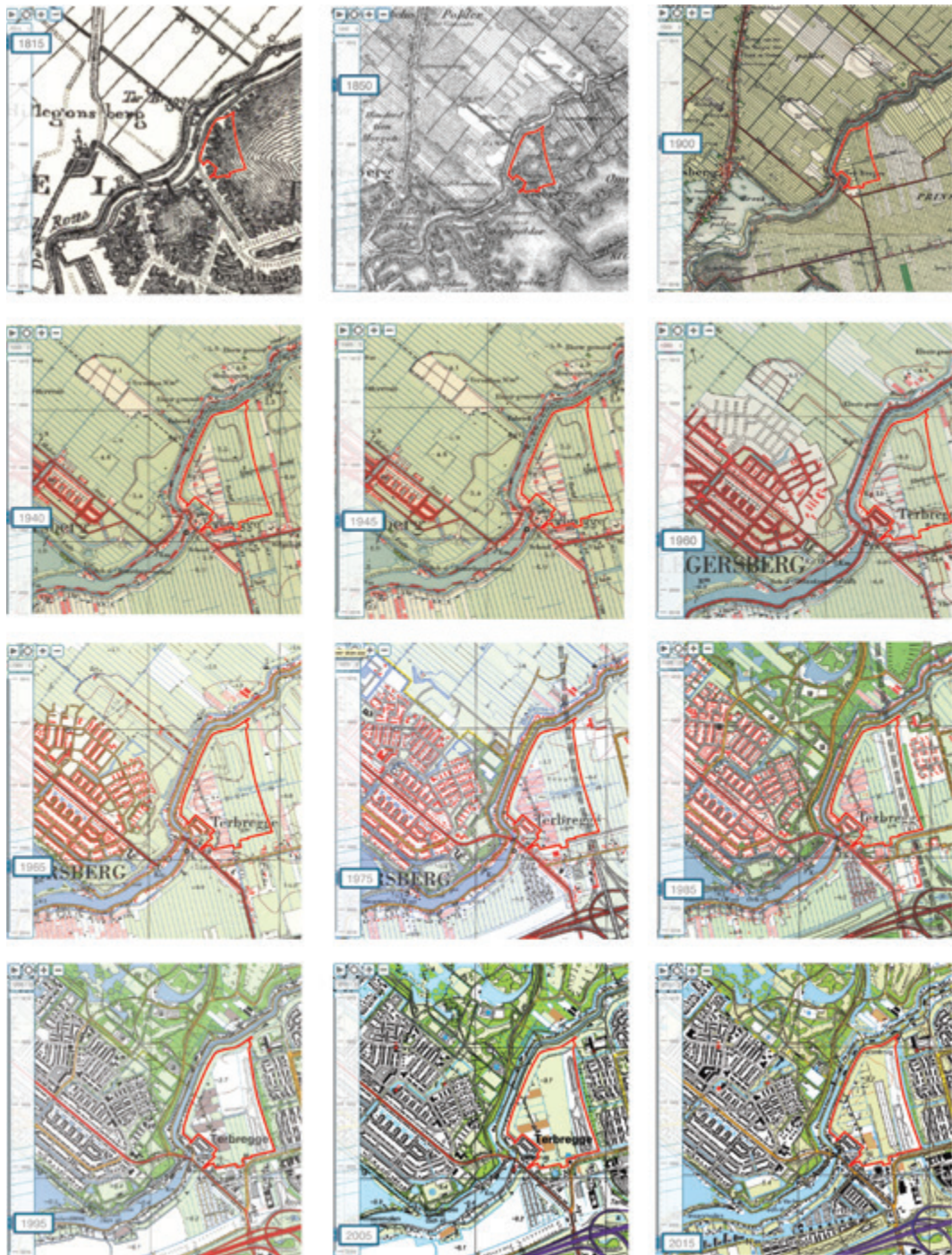


FIGURE 6 The transformation of the landscape from 1815 to 2015. The topographical maps of the past decades show the urban fabric gradually replacing the farmland. The last remaining piece of land that the painter Chabot saw and painted escaped urbanisation, an open space surrounded by buildings and highways. The square kilometre of peat meadow polder opposite Chabot's house is an exemplary summary of the inner edge of the Randstad conurbation: a reclamation polder on a peat river, remnants of farmland, village edges, urban expansions, motorway sites, and recreational areas. The unintended by-product of these independent developments is the borrowed boundary. (Images from Topotijdreis.nl, edited by Michiel Pouderooijen)

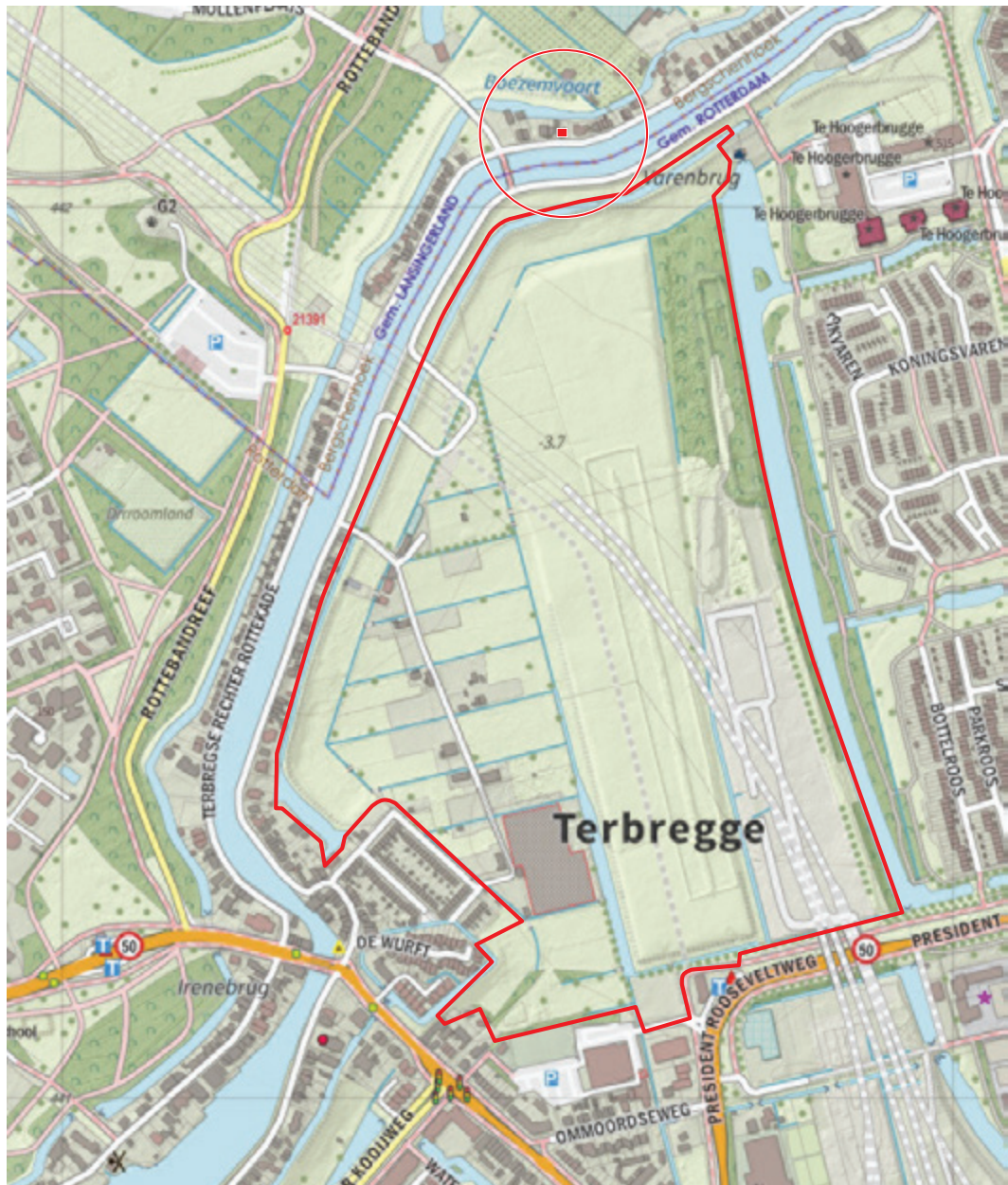


FIGURE 7 Leftover land between Rotte and A16. Lowland between river, village, and suburbs, intersected by the mouth of the tunnel. As early as fifty years ago, people were speculating on large traffic axes that would connect Rotterdam through the Green Heart to Amsterdam. The piece of land, which lies in line with the axis of the Van Brienoord Bridge, was reserved for the national road plan. Soon it will be possible to drive straight through the Terbregseplein, where the north-south axis splits in two directions, and disappear in a motorway tunnel in the centre of the fields. The rest of the land will be like a horseshoe around the mouth of the tunnel. At the moment, there are no definite plans for the land on either side of the tunnel entrance. The area coincides with the view from the painter's studio on the right side of the river (indicated in the red circle). Observatorium sees an excellent opportunity to baptise the area "the Land of Chabot" and preserve what is so characteristic of the paintings: the horizon and the high sky above it, visible from the dyke of the Rotte. (Images from Opentopo.nl, edited by Michiel Pouderoijen)

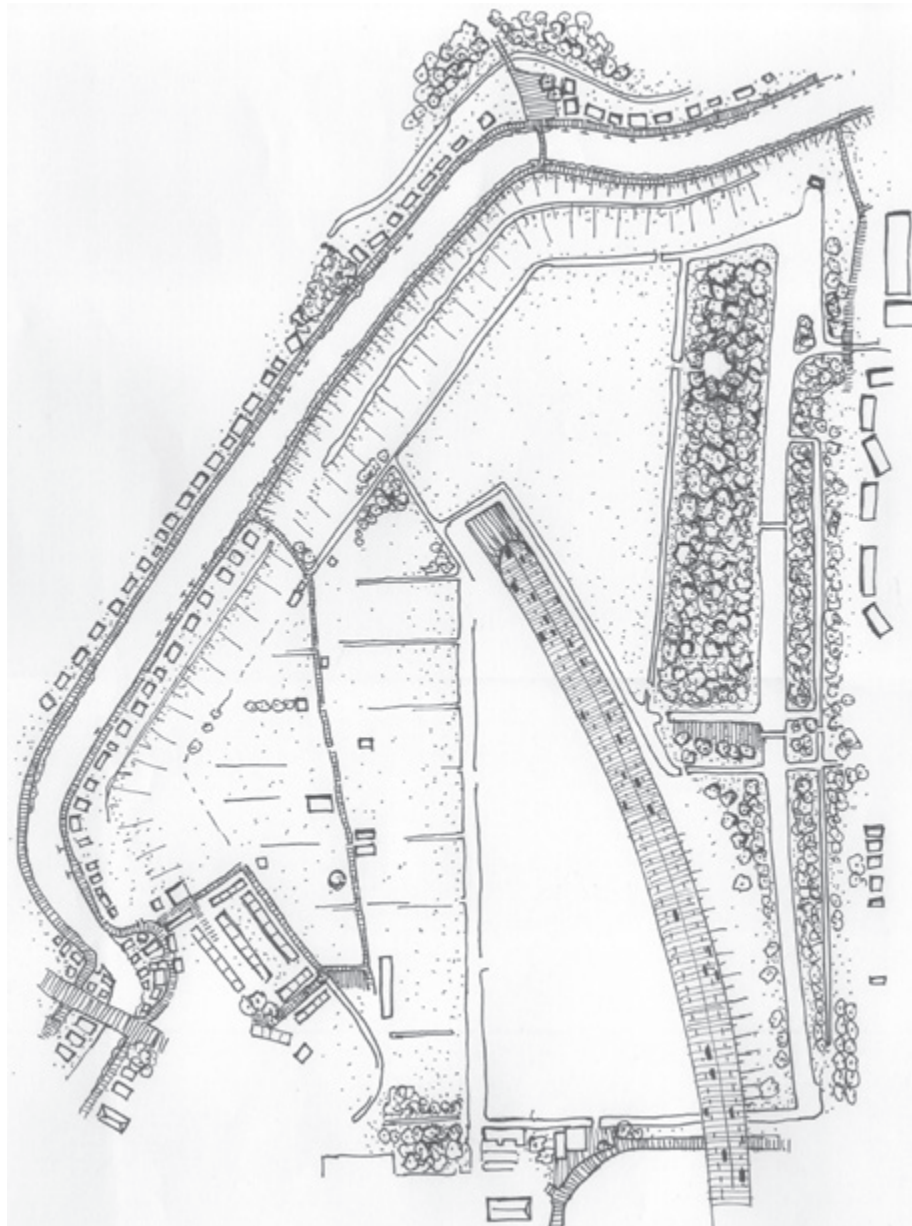


FIGURE 8 Basic plan drawing for the Land of Chabot. The boundary is formed by existing buildings and infrastructure, as a *jardin trouvé* amid large-scale metropolitan developments. As few facilities as possible will be built in the area between the painter’s studio and the tunnel entrance. The drawing shows the existing dykes, infrastructure, and buildings serving as “borrowed boundary”. Just as some countries are bounded by seas, rivers, and mountains, so the borders of the Land of Chabot appear to be physical boundaries: dyke, ditch, traffic road, and village, all preventing access. “The Land of Chabot provides for moments of standstill in the cogs of the metropolis. How can one recognise the Land of Chabot as a landscape theatre after this area has been bisected by the new ring motorway of Rotterdam? How can one look at the 21st century metropolitan landscape with Chabot’s 20th-century view of the farmland? We can outline, describe, name, and mark it, like a garden in a metropolitan landscape. But how do we create a sense of wonder in this already magical place?” asks Observatorium. (Drawing by Observatorium, 2019)



FIGURE 9 Walking symposium in the Land of Chabot, led by Observatorium (September 1, 2018). In response to the request for a monument for Chabot, Observatorium began by observing that space where Chabot saw the meeting of the earth and the skies. Together with a group of experts - who know Chabot's work, who live here, who are building the motorway, who design the urban expansion, who protect nature - they strolled through the meadows for a day. People did not look from the road towards a landscape but found themselves roaming the land. Their resulting recommendations to Observatorium can be summarised as: a *struinpolder* (rambling polder) rather than a recreational area; priority for plants and animals; a living monument. These are inspired by the feeling of freedom in the absence of design and infrastructure in the meadows. (Photograph by Observatorium, 2018)



FIGURE 10 Newspaper article Gert Onnink, *Algemeen Dagblad*, 30 August 2018. An important component of the design for the Land of Chabot is communication, allowing the idea to land before it comes to fruition. 'First believing, then seeing'; is Observatorium's motto when it comes to integrating art into public space. During the design phase, *Algemeen Dagblad* regularly published about Observatorium's suggestion to name the motorway tunnel Chabottunnel. A walking guide will be presented in the Chabot Museum in the Autumn of 2020 on the occasion of the celebration of 750 years of Dam in de Rotte, the dam that disconnected the river Rotte from the Maas and the North Sea.



FIGURE 11 The new world under the sky of Chabot. The illustration shows the ambition of the Land of Chabot: a landscape theatre of meadows and ditches and horizon in an urban environment. The Dutch landscape of vistas of dykes, fields, and farms gives way to a metropolitan mosaic of suburbs, recreation parks, and highways. Would Chabot paint this too? How would his skies look above the motorway landscape? Undoubtedly, he would paint life on earth again as a staffage of the skies. In Chabot's paintings, people live under high skies. Their existence takes place in a distance. These two dimensions of height and distance barely touch each other in Chabot's paintings. The horizon is not the place where the skies and the land meet, but where the sky continues beyond the horizon: "Where the wide skies dome over the vast landscape". (Diary Kees Stortemeijer, collector of Chabot) (Drawing by Ruud Reutelingsperger, Observatorium, 2019)



FIGURE 12 Pages from the walking guide *Rondom en Binnenin* (Around and Inside) for the Land of Chabot.

LEGEND

Around

1. The view from the painter's house
2. White bridge over the Rotte
3. Pump station Ommoord
4. Island in the woods
5. Wood across the river
6. Bridges and crossroads lead to wilderness
7. Intersection
8. Rubbish along the Rotte
9. Water is everywhere and nowhere
10. Bel air and no entrance
11. Horses and gardeners
12. Fresh water mussel

Within

- A. Roof landscape
- B. *Struinpolder* Minus seven metres
- C. Sound barrier with 360-degree pavilion on a noise barrier

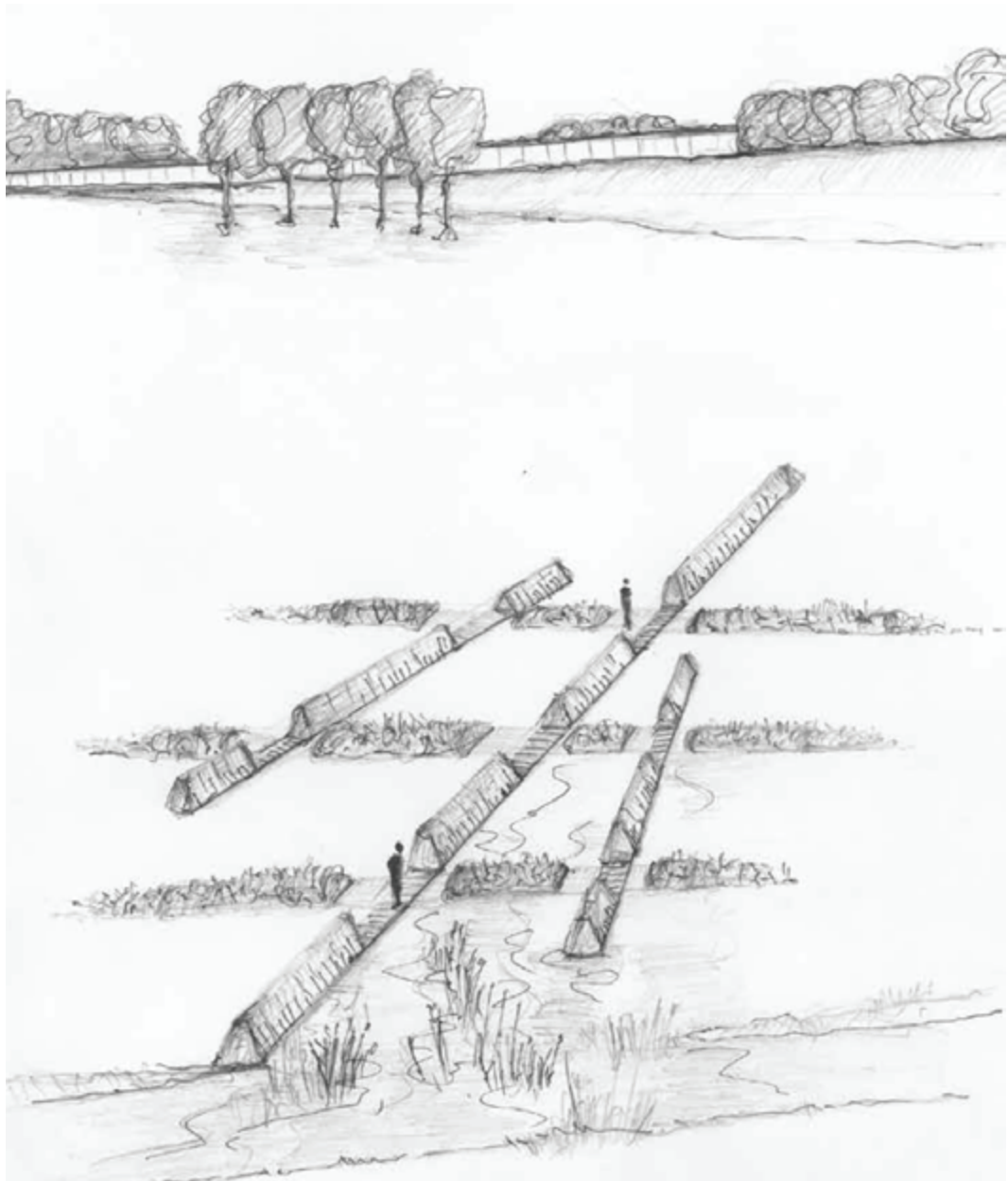


FIGURE 13 Impression of a *stopspot*: subtle earthwork embedded in the landscape, symbolically referring to Chabot’s paintings, and translating the recommendations of the walking symposium: *struinpolder*, priority for plants and animals, and a living monument. A *struinpolder* is a meadow grazed by cattle where you can roam freely. The fields inside form destinations where you can see the elements of Chabot’s paintings—river, dyke, row of houses, roof landscape—and experience the painting’s ingredients intensified: the sky above, the earth below, the vegetation in the distance, and the water present in everything. Coming from the city, the Land of Chabot is the first place with a view of the horizon as a promise of the vastness (height x distance) of the polders further on in the Green Heart of the Randstad.

Inside 1: Roof landscape (Stopspot B). The orthogonality of the polder ditches is intersected by a system of thatched roof points. They refer to the time when houses were made with local materials and to the fact that so many paintings offer a view of thatched roofs as landscape. (Drawing by Ruud Reutelingsperger, Observatorium, 2019).

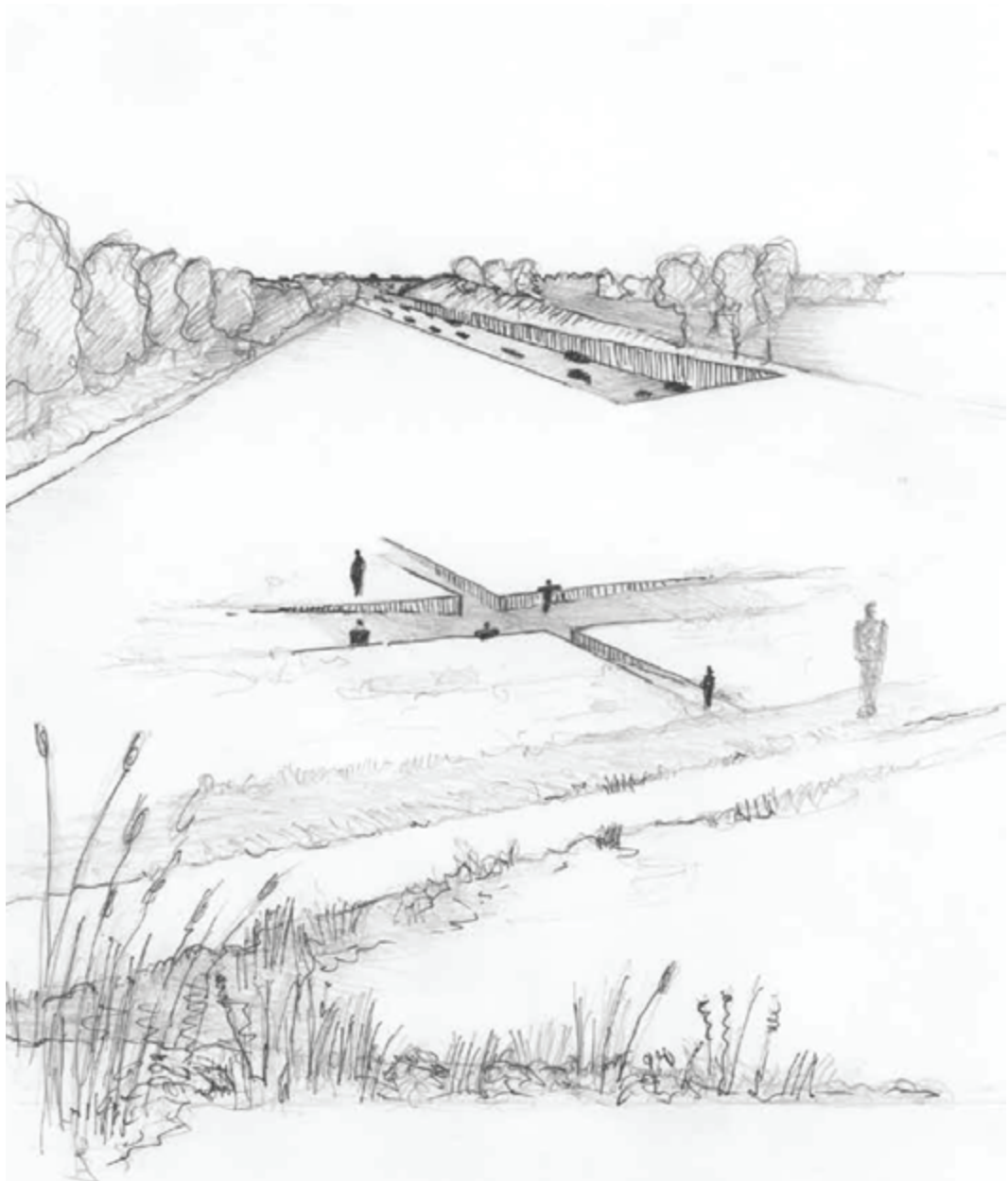


FIGURE 15 Impression of a *stopspot*: subtle earthwork embedded in the landscape, symbolically referring to Chabot's paintings, and translating the recommendations of the walking symposium: *struinpolder*, priority for plants and animals, and a living monument. A *struinpolder* is a meadow grazed by cattle where you can roam freely. The fields inside form destinations where you can see the elements of Chabot's paintings—river, dyke, row of houses, roof landscape—and experience the painting's ingredients intensified: the sky above, the earth below, the vegetation in the distance, and the water present in everything. Coming from the city, the Land of Chabot is the first place with a view of the horizon as a promise of the vastness (height x distance) of the polders further on in the Green Heart of the Randstad.

Inside 2: Minus seven metres (Stopspot C). Part of the meadow is deepened so that the visitor has an unobstructed view of the horizon from the lowlands. The depth connects to the phenomenon that the land here is more than seven metres below sea level. It could become the lowest point in the Netherlands. (Drawing by Ruud Reutelingsperger, Observatorium, 2019)

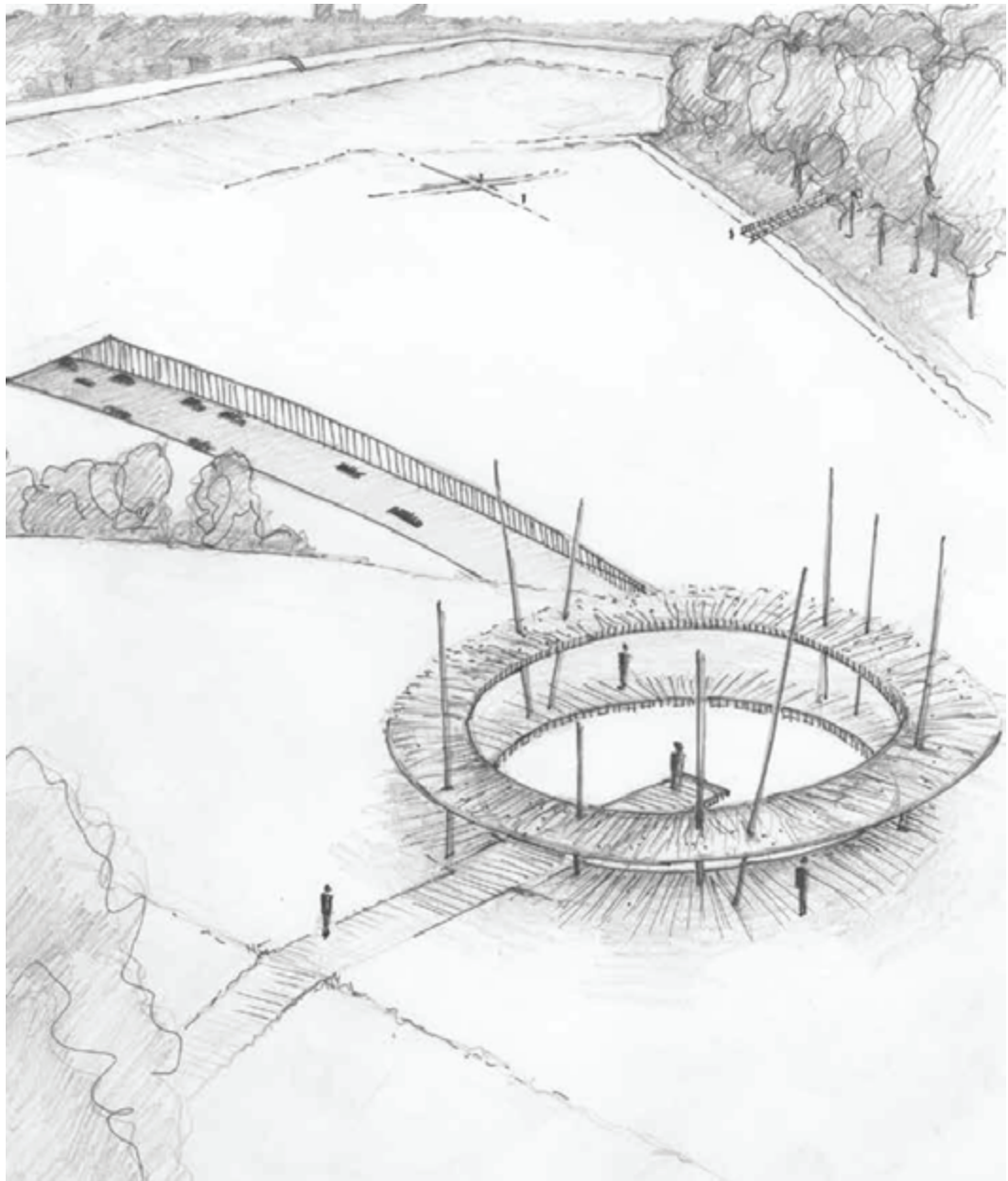


FIGURE 16 Impression of 360-degree pavilion on a noise barrier along future A16 (Stopspot D). The pavilion is a panopticon of the metropolitan horizon. From the relative emptiness of the Land of Chabot you get a view of the skyline of Rotterdam, the flyovers of Terbregse Plein, the apartment buildings of suburban Ommoord, and the remnants of the river landscape of the Rotte. It is part of a circular walk around the *jardin trouvé* of one square kilometre in a metropolitan mixture of suburb, rural village, and remnants of farmland on a subsurface of peat meadow polders far below sea level - the Dutch condition par excellence. (Drawing by Ruud Reutelingsperger, Observatorium, 2019)

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Garden Thinking in Cities of Tomorrow

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Abstract

Since the middle of the 19th century, when the term 'landscape architecture' began to replace the hitherto common term 'garden art', the garden as a work of art and gardening, understood as a predominantly decorative activity, stood in the critical discussion about the future of the metropolises. It was not only architects and urban planners who repeatedly questioned the value of ornamental gardens in the city. Against the background of the enormous growth of the cities in the industrial age and the accompanying social problems, leading European landscape architects in the 20th century like Leberecht Migge (1881-1935), Ernst Cramer (1898-1980), and Dieter Kienast (1945-1998) stated that gardening is neither artistic work nor scientific planning, neither modern nor progressive. Given the respective historical context as well as the particular conception of city and society, this criticism is comprehensible. In the 21st century though, the garden as a living component in the 'network metropolis', and gardening itself, especially 'urban gardening', were experiencing a remarkable renaissance. Against the background of today's rapid development of the 'Zwischenstadt', it turns out that the basic principles of garden thinking never really lost their relevance.

Keywords

landscape architecture, urban gardening, modernism, functionalism, ecology, modern art

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Introduction

Frederick Law Olmsted was apparently the first professional in the mid-19th century to use the term 'landscape architecture' in connection with his work on Central Park in New York. Given the huge urban planning task with which he had to struggle for more than two decades, in the end he no longer thought it was appropriate to speak of 'landscape gardening' or 'garden art', as these terms focus too much on the garden as a merely aesthetical institution. Instead, he coined the term 'landscape architecture' and henceforth used it in the letterhead of all his correspondence and in countless inscriptions and plans.

Central Park (Fig. 1), which covers an area of 340 hectares, was created as a democratic public park as a result of profound changes in the social fabric of the metropolis. It was among the world's most progressive and pioneering open space concepts of its day. The park is still cited as an example of progressive landscape architecture. As knowledge of this particular model has spread during the past 150 years, the term 'landscape architecture' became popular around the world. During the same time, and to the same degree, gardening was increasingly suspected of not being useful with regard to the development of today's constantly growing amalgam between landscape and city, called "Zwischenstadt" (in-between city) by Thomas Sieverts (Sieverts, 1997) or "network metropolis" by Saskia de Wit (de Wit, 2018, p. 356). Sieverts coined the term "Zwischenstadt" in 1997 to describe a living environment in which we can no longer clearly differentiate between the city and the country, because the compact cities lost their clear boundaries and dissolved, resulting in vast metropolitan landscapes which are thriving especially in the Global North. "The term 'Zwischenstadt' signifies that today's city is in an 'in between' state, a state between place and world, space and time, city and country." (Sieverts, 2002)

The landscape architecture of the 20th century, in view of large-scale, globally important tasks and growing challenges of industrial-based urban development, no longer accepted gardening as a helpful practical method for planning and design. Gardening was associated with a small-scale private context and with traditional perceptions of nature – a stark contrast to the modern belief in progress.

The future of humanity will no doubt be an urban future. And gardening, such as 'urban gardening', as one of the themes discussed in debates about the sustainability of the Zwischenstadt, about the future of the metropolitan landscape, is once again becoming a focus of interest. (Fig. 2) Is this trend pointing the way or is it just a fad related to the romantic notion of withdrawing from our rationally designed urban environment to the realm of beautiful gardens? In order to understand why the ornamental garden slipped out of the focus of metropolitan landscape architecture and why garden design was perceived with such scepticism, it is necessary to take a look at the history of landscape architecture during the past century.

Three landscape architects who coined the development of their profession throughout the 20th century in the German-speaking countries of Europe and beyond, clearly commented on the value of garden design and ornamental gardening, based on their visions of current and future metropolitan life. The German garden revolutionary Leberecht Migge (1881-1935), as well as the Swiss landscape architects Ernst Cramer (1898-1980) and Dieter Kienast (1945-1998), are the key witnesses in the following journey through the 20th century development history of garden design and garden thinking.



FIGURE 1 When building Central Park in the 19th century, Frederick Law Olmsted no longer thought it was appropriate to speak of 'landscape gardening' or 'garden art'. (© Udo Weilacher).



FIGURE 2 Beijing is growing fast, producing a highly complex system of spaces, a metropolitan landscape, challenging the current understanding of 'gardening'. (© Udo Weilacher).

Fighting for the Functional Garden

At the beginning of the 20th century there was still a strong belief in the efficacy of gardening in pursuit of social progress, and 'green' was considered to be very modern. Leberecht Migge, born in 1881 in Danzig, is regarded as being the most important German garden reformer, and his work is still recognised around the world. Migge was firmly convinced that the future of industrial society could only be secured through the use of a new kind of garden culture. In his work, however, he vehemently refused to have any association with art and declared "as the first representative of his profession the death of garden art. The function of the garden has to be expressed [...] without any aesthetic considerations" (Wimmer, 1989, p. 368). Leberecht Migge opened his landscape architecture office in Hamburg-Blankenese in 1913 and in the same year wrote the book *Die Gartenkultur des 20. Jahrhunderts* [*The Garden Culture of the 20th century*]. Six years later he published *Jedermann Selbstversorger! Eine Lösung der Siedlungsfrage durch neuen Gartenbau* [*Everyman Self-Sufficient! A solution to settlement issues through new gardens*] (Migge, 1919). Both books are flaming manifestos about the need to think of gardens in new ways. They were written in the face of an impoverished working class in Europe before the First World War and as a result of dramatic food shortages during the post-war period. Working together with many well-known architects of his day, including Ernst May, Bruno Taut, and Martin Wagner, he contributed to the development of several exemplary urban planning projects in Berlin (e.g. *Hufeisensiedlung*) and Frankfurt (e.g. *Römerstadt*). In his practical applications he proved that garden culture and urban planning could complement each other extremely well. Urban living without gardens was unthinkable for Migge.

Inspired by his strong awareness of social reform, Migge not only extolled a new type of garden culture (Fig. 3) that, in theory, would suit the changed lifestyles of the modern industrial society. In 1920, he founded the *Intensive Settlement School* in Worpswede, where, on about 4.5 hectares of land, he taught his students the practice of productive garden culture, as well as about standardised housing development. He also developed technical innovations for the garden, such as the *Metroklo*, a toilet for the composting of faeces. "This so-called garden art", he emphasised in 1913, "is nothing more than the capricious and yet natural sister of architecture and spatial art, or better, of cultivated construction. I consider it to be part of the applied arts. As such, it shares the avocation of everything applied: to be partly dependent on purpose, situation and material. [...] Why am I talking about it at all when I actually wish to negate it? Because I want people to stop talking to those of us who create gardens about things that can only be created through work. You can see just how dangerous this is: By just trying to give those who work hard to survive the day-to-day struggle more freedom from the overwhelming aesthetic aspects of gardening, I have almost begun – horror of horrors! – to wax rhetoric myself" (Migge, 1913, p. 142).

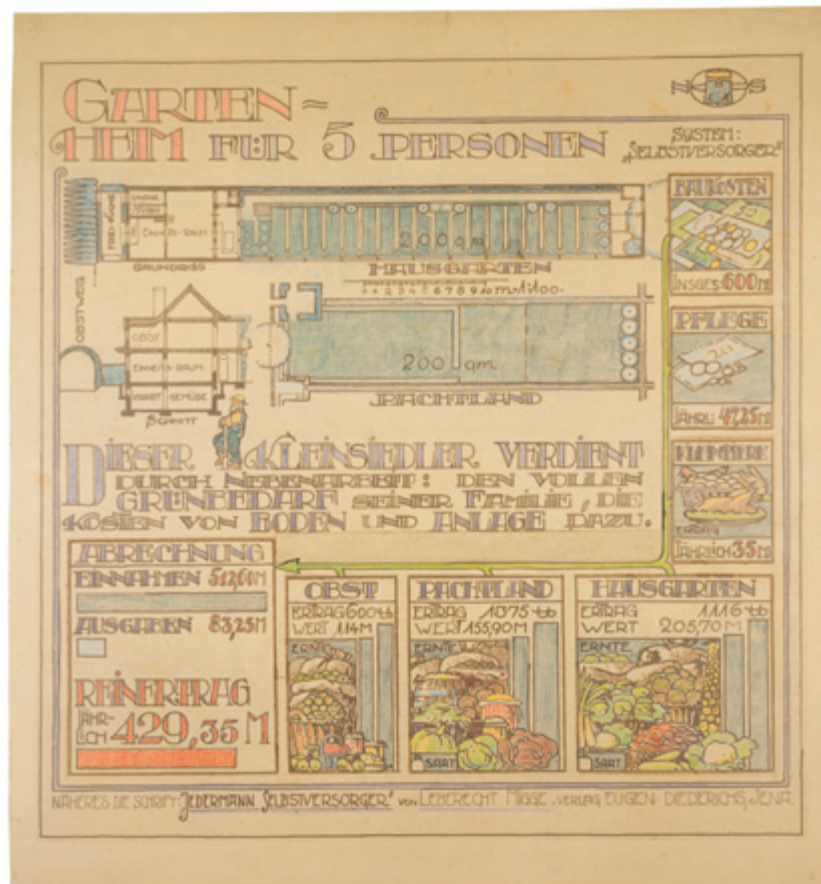


FIGURE 3 The German garden reformer Leberecht Migge believed in self-sufficiency and was convinced that new settlements should always be based on rational gardening principles. (© Archiv Schweizer Landschaftsarchitektur Rapperswil/ Switzerland).

For Leberecht Migge the garden of the future, “the prospective garden” (Migge, 1927, p. 64), could only be a fruit and vegetable garden (Fig. 4), which, in his opinion, did not have to be beautiful or of a particular garden style, as, if necessary, a style would develop by itself, “growing from the life of its own time” (Migge, 1927, p. 70). With regard to the design of the garden, however, Migge had very concrete ideas. “In order to make a good garden in the future, it will be necessary to leave aside some of the old tools that are today thought of as belonging to the art of beautiful gardens” wrote the garden architect in his chapter about basic design. He then explained that “there are always certain purposes that have to be served when establishing a garden, purposes that must be represented and shaped. But how? The architectural design of the garden is particularly essential for us because it is so simple. Because its elements are the easiest to handle and are inherently so economical, that in our time of mass problems they alone allow us to have some kind of broad effect: I desire the architectural garden for economic and social, for ethical reasons” (Migge, 1913, pp. 63-66). Interestingly, the self-proclaimed “Spartacus in green”, who announced the death of beautiful garden art, is now considered by followers of urban gardening to be “a kind of guiding spirit of gardening in the city” (Müller, 2011, p. 15). This is done with a complete disregard of the significant changes that have occurred with respect to economic, ecological, and social conditions occurring since the beginning of the 20th century. It now appears as if gardening, in a new context of urbanisation, is once again gaining attention and importance. First, however, it must be noted that Migge clearly rejected gardening as an activity that was influenced by art and thus greatly contributed to gardening’s loss of reputation, especially among landscape architects. Migge’s “innate tendency to have extreme views and revolutionary aspirations, and his predisposition for ruthlessness in his actions” (Gröning, 1997, p. 264) resulted in his being forbidden to practice his profession by the National Socialist regime in 1933. His progressive ideas were then slowly forgotten about for several decades. (Fig. 5)

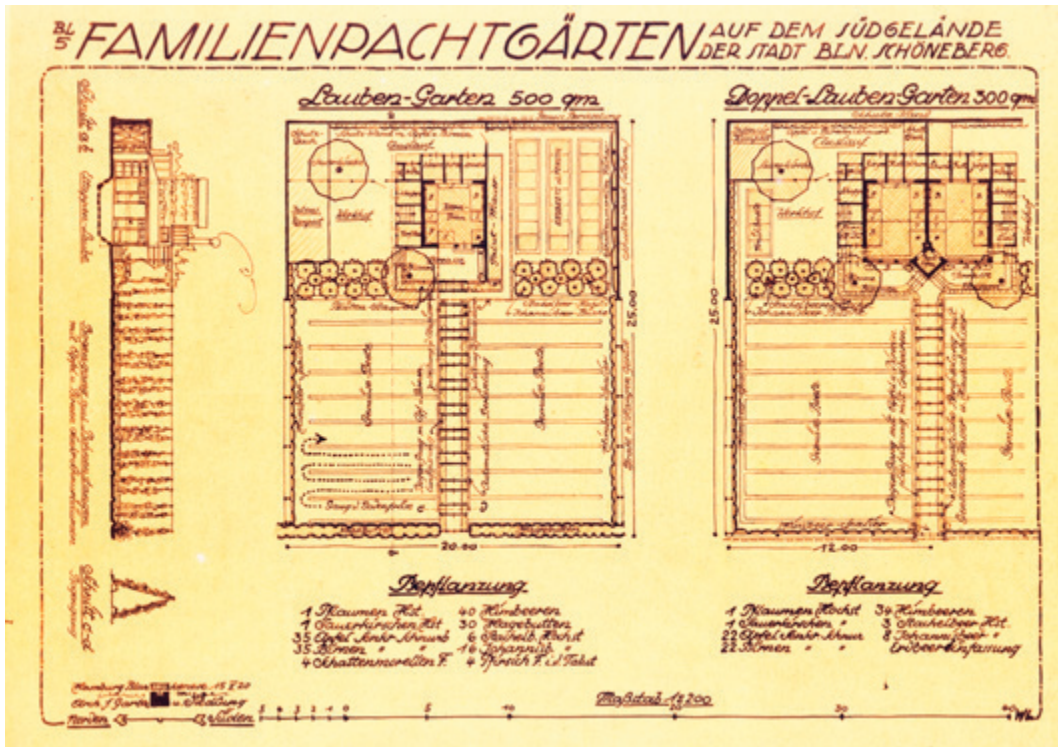


FIGURE 4 For many German cities, including Berlin-Schöneberg as shown here, Migge designed gardens for families to lease, paying close attention to the functionality and practicability of his design. (©Archiv Schweizer Landschaftsarchitektur Rapperswil/ Switzerland).



FIGURE 5 The functionalistic concept 'Palestine Settlement' by Leberecht Migge from the early 1920s strongly influenced the development of cooperative agricultural communities in Israel. (© Archiv Schweizer Landschaftsarchitektur Rapperswil/ Switzerland).

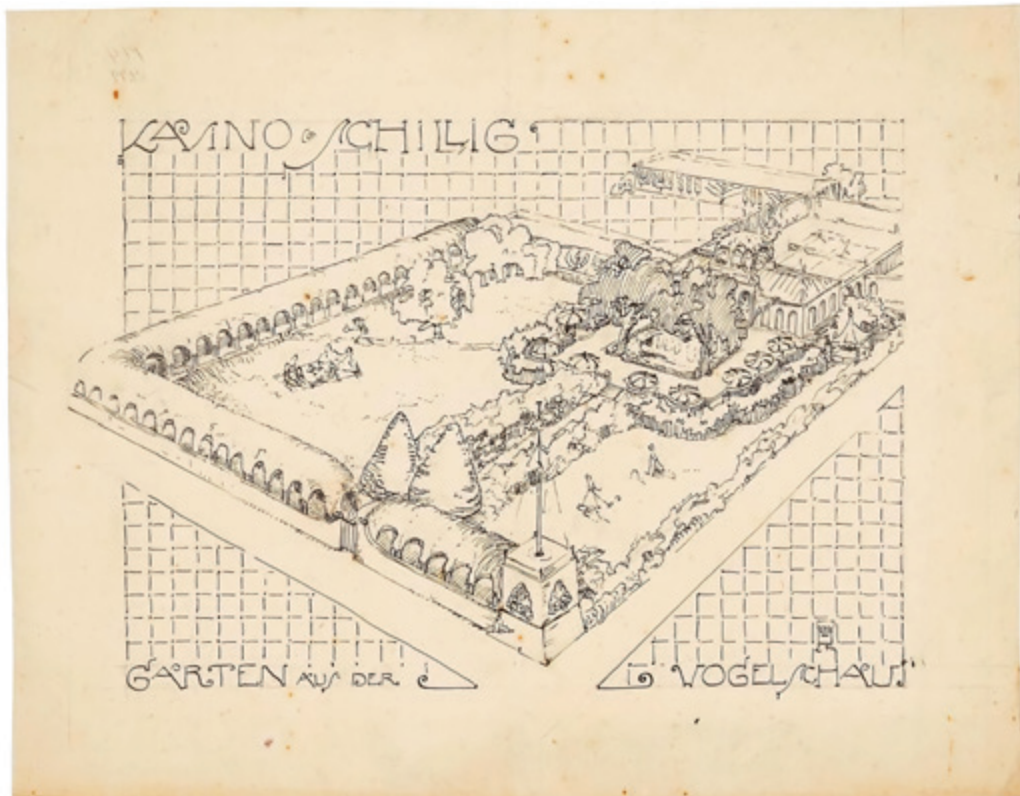


FIGURE 6 Restored original drawing by Leberecht Migge: Garden Casino Schillig (Archive for Swiss Landscape Architecture ASLA)

Adapting to Modern Metropolitan Life

The modernist movement in Europe, especially the so-called avant-garde, was especially effective at eradicating traditional thinking about gardens from 20th century landscape architecture in the period between 1915 and 1932. While Olmsted's objections to the use of the term 'landscape gardening' were mostly functional, the pioneers of classical modernism had ideological and socio-critical reasons for fighting against anything that had to do with imitation, decoration, and historicism. Among the things they considered to be unacceptable was of course the imitation of nature, including classical garden art and traditional garden design. Piet Mondrian, one of the most influential exponents of modern painting, graphic arts, architecture, and design, demanded that in the sense of new design, truly modern artists choose abstraction, and that they should free themselves from the dictates of the natural and the individual: "The domain of truth is pure abstraction. New design is therefore abstract-real" (Wisner, 1985, p. 42). Modernists felt that a design discipline such as garden architecture, which traditionally felt itself closely connected to nature and that found its ultimate teacher in nature, could not be trusted.

An example of the deep dilemma garden architects often got themselves into when they tried to meet the strict principles of classical modernism is the development of *Die gute Form* [Good Design] in Switzerland after the Second World War. *Die gute Form* was probably the most formative programmatic action of the Swiss Werkbund after 1945. It was intended to increase critical feelings of responsibility within the post-war society and to proclaim a new, aesthetically binding model for all areas of life. Swiss architect, artist, and designer Max Bill played a major role in this. As part of the MUBA trade fair in Basel in 1949, the Swiss Werkbund presented a special exhibition entitled *Die Gute Form* in order to demonstrate its post-war

educational and reformist goals. In addition, the competitiveness of Swiss consumer and durable goods, which had a high degree of “form-instilling, high-quality work”, was to be secured on the world market (Brogle, 1949, p. 259). Max Bill was tasked with the design and realisation of the exhibition, and in his keynote speech in October 1948 entitled “Beauty of Function and as Function” he underlined the need for the careful design of all aspects of life, “from the common pin to home furnishings, designed in a sense of beauty that is developed from function and that fulfils its own function through its beauty” (Bill, 1949, 274).

With the title *Die gute Form*, which was awarded annually as a prize for well-designed products, the Swiss Werkbund formulated a design-related and social reform-oriented claim by which its own members, including Swiss Garden architects Gustav Ammann (Stoffler, 2008) and Ernst Cramer (Weilacher, 2001) were to be judged for two decades. In 1949, Max Bill emphasised that “These somewhat crystalline-shaped design problems not only have to be dealt with when creating consumer goods, it is also a question of vital importance with regard to the development of architecture. If these questions are not dealt with – and not in the sense of architecture with wall paintings and sculptures as decorative elements – architecture, as well as consumer goods, will be seen as doing little more than gratifying basic needs or will get lost in historicist and artistic gimmickry” (Bill, 1949, p. 274). In saying this, he wished to set high standards concerning the quality of design for the modern environment in which we live.

The garden architects of the Werkbund inevitably raised the question of whether their projects would ever meet the criteria set by *Die gute Form* and free them of the dictates of nature. In 1948, Gustav Ammann, who was later general secretary of the International Federation of Landscape Architects (IFLA), said “When we try to take a closer look at gardening concepts in this materialistic era of rationalisation and expediency, we are extremely astonished that we do not see an expression of this in the concepts, but rather one of modern romance and freedom, and this contrast to our daily approach to life surprises us. It is as if modern man is looking for everything in the garden that he is unable to realise in his other daily activities; it is an escape from oneself and an expression of a ‘heavenly state’, if one may call it that. It would be quite wrong to accuse the designers of gardens that they are the ones that who want to live in a completely different world and force their ideas on the owners of gardens. They are only the instrument that makes the sounds that want to be heard” (Ammann, 1948, p. 292). This image of the garden designer, not acting as an active interpreter but rather as a passive instrument of the client, was a clear contradiction to the moral and aesthetic orientation that the Werkbund, the avant-garde of modernism, had formulated. This merely confirmed the opinion that many critics had, that gardening made neither a relevant contribution to contemporary art and architecture, nor to the progress of modern society.

About a decade after the first edition of *Die gute Form*, a landscape architect from Zurich succeeded in creating a garden that, for the first time, met the criteria of classical modernism in its conception of space, design, and geometric purity, and exceeded the limits of traditional gardening: the *Garten des Poeten*, in *English Poet’s Garden*, by Ernst Cramer at the first Swiss Horticultural Exhibition G59. Spurred on by discussions in the Werkbund and inspired by personal encounters with visionary modern architecture and visual arts in the years following the Second World War, Ernst Cramer took advantage of an opportunity in 1959 to create a bold, temporary experiment on the banks of Lake Zürich (Fig. 7). This project’s radical reduction would only be exceeded one time by Cramer, when he built his *Theatergarten (Theatre Garden)* in Hamburg in 1963 (Weilacher, 2001, pp. 151-161). In contrast to the usual decorative horticultural show programme of its time, the garden architect used the simplest of means to create a spatially non-hierarchical, abstract composition consisting of four grass-covered pyramids, a terraced cone and a right-angled expanse of water containing the abstract iron sculpture *Aggression*, created by the Swiss sculptor Bernhard Luginbühl. Cramer, an admirer of Mondrian’s neo-plastic painting, knew about the power of pure artistic abstraction and was aware that he had really created a landscape sculpture instead of garden. He was certain that his colleagues, who still preferred a more picturesque design of gardens that mimicked nature and the landscape, would vehemently protest against this garden.

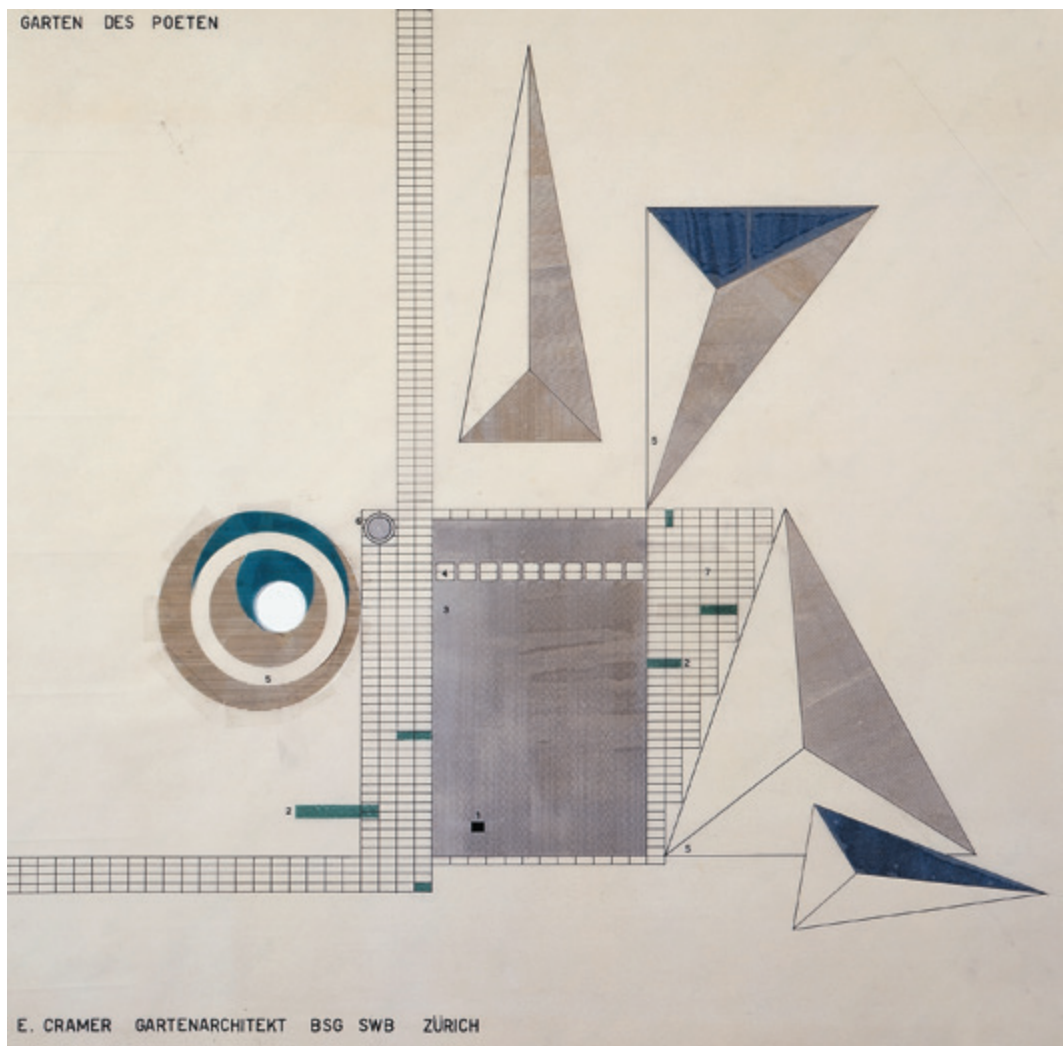


FIGURE 7 Plan of the Garten des Poeten (Garden of the Poet) at the first Swiss garden exhibition G59 in Zürich 1959. Size: 64 x 64 centimetres, coloured foil on transparent paper. (© Archiv Schweizer Landschaftsarchitektur Rapperswil/ Switzerland).

In addition to sharp criticism from the ranks of garden experts, there was also widespread recognition of the *Poet's Garden*. Much of this recognition, interestingly enough, was from those involved with the visual arts. (Fig. 8) Hans Fischli, himself a painter, architect, artist and, at that time, director of the School of Art and the Museum of Applied Arts in Zürich, was greatly impressed and wrote a personal letter to Cramer in which he described the garden architect's project as a landscape, "You[...] bring us a completely new landscape, which creates a sense of space I have never felt before in the open air. You prove that given an ingenious mind and a precise use of the craft, it is not absolutely necessary to use the valuable material soil the same way the forces of nature do. You do not create an imitation of a natural event, instead you create a work in a way that we abstract painters and sculptors have been trying to achieve by concrete means for years" (Fischli, 1959). The Museum of Modern Art in New York honoured the Poet's Garden in 1964 in the publication *Modern Gardens and the Landscape* (Kassler, 1964), which was the "first book to discuss the relationship between the modern garden and the natural landscape in terms of contemporary aesthetics..." (Museum of Modern Art, 1964). Elizabeth B. Kassler, renowned American art expert, curator at MOMA, and author, said "the garden was not so much a garden as a sculpture to walk through" (Kassler, 1964, p. 57). Ernst Cramer was convinced that classical gardening concerned itself far too much with the use of decorative plants and was still steeped in a traditionalism that is hostile to progress instead of formulating an adequate aesthetic response to modern architecture and modern metropolitan life.



FIGURE 8 The Garten des Poeten with its abstract mountains at the shore of lake Zürich with a view to the real mountains in the background (© Archiv Schweizer Landschaftsarchitektur Rapperswil/ Switzerland).



FIGURE 9 Probably one of the Burle Marx's first gardens from the early 1930s: The landscaping for the Ministry of Education and Health in Rio de Janeiro. (© Udo Weilacher).

Announcing the decade of environmental planning

“Now it is the time for all good men to come to the aid of their planet.” This call from Time magazine in 1970 was used by American landscape architect Hubert B. Owens as an opportunity to announce in a Swiss journal that the coming ten years would be ‘The Big Decade’ for environmentalists” (Owens, 1970, p. 37). He predicted that in the 1970s a triumvirate of ecologists, regional planners, and landscape architects would take the lead in the design of open space – and this proved to be correct. Given the global environmental disasters and energy crises, landscape architecture and landscape planning had already begun to make a drastic paradigm shift in the late 1960s, which further upstaged traditional garden design and strengthened the demand for scientifically sound environmental planning.

As part of the ecology movement in the 1970s, ‘naturalness’ acquired the highest status in the eyes of a majority of garden designers, and it was considered pioneering to dispense with the artistic aesthetic in garden design in favour of ecology. Nature was a better designer anyway and would create an aesthetic quality in parks and gardens by itself. Dutch ecological pioneer Louis Le Roy became famous as the ‘wild garden man’ who did not agree with the design excesses of urban planning, which, in his eyes, made the environment increasingly monotonous, to a point where everything was austere, cold, and overly proper. In contrast to this, he tried to create structures that were as complex as possible (Le Roy, 1973). In the 1970s, he felt that it was high time to develop a new awareness of the environment in garden design, and thus he became involved in the international natural garden movement. The purpose of these predominantly private gardens lay in the preservation of a diverse, Arcadian nature that was able to defend itself against the excesses of rational, goal-oriented planning and against a landscape architecture that was focused on a professional, formal aesthetic. The paradigm shift in the 1970s resulted in enormous progress in landscape ecology as an interdisciplinary planning science and in a stronger consideration of environmental and conservation issues. This also had a clear impact on the design of gardens. The landscape architectural projects of this decade were characterised by an aesthetic whose form resisted the alleged cold orthogonality of classical modernism. Roberto Burle Marx was one of the most internationally renowned

landscape architects of the 1970s. His projects were characterised both by high artistic standards and, surprisingly, by a strong commitment to conservation. “To create gardens is a marvellous art – possibly one of the oldest manifestations of art”, wrote the Brazilian in 1991 while stressing, “We are living at a time in which the destruction of nature is so great that it has become a preoccupation of thoughtless and ambitious people. In our struggle against the destruction of a legacy, we need to understand that we live in a world where plants exist, not only for material reasons, but also because they depict birth, growth and death, emphasising the instability of nature” (Eliovson, 1991, p. 7).

Burle Marx, whose career began in the 1930s, was both a garden artist and an ecologist and developed his distinctive “Burle Marx style”. “His landscapes are characterised by asymmetrical spatial rhythms that seem to reflect Brazilian culture, rooted in passion and *emotional* expressiveness, as well as the mysteries of the wild landscape, including the tropical Amazon, *coastal beaches*, and the east-central plain of Brasilia. Burle Marx’s artistry for garden design used modern art as a prototype within the matrix of living ecological systems” (MacMillan Johnson, 2001, p. 121). Among his most celebrated projects, which made him world famous, are *Flamengo Park* (1954) and the *Copacabana Beachfront* (1970) in Rio de Janeiro (Fig. 9). Most of his projects, however, are exquisitely designed private gardens, roof gardens and courtyards. The admiration for this Brazilian landscape artist was extremely large both nationally and internationally, and still is today. During “the big decade for environmentalists”, however, he seemed like a rare bird of paradise who vehemently defended his faith in the beautiful garden art that Leberecht Migge had profoundly shaken to the core.

The new ecologically conscious garden ideal in Europe was readily apparent in the second Swiss Horticultural Exhibition, *Grün 80*, in Basel. In this sensational exhibition, garden architects, architects, artists, sociologists, ecologists, and gardeners created an Arcadian, 46-hectare landscape that effectively reflected the missionary character of the new environmental awareness with its use of flowing contours, natural and flower gardens, lakes, biotopes, ruderal areas and vegetable beds. “In a time of reflection – A change from quantitative and qualitative growth – A search for new values and their goals” (*Grün 80*, 1980), the exhibition was intended to provide a forum for problems concerning man and nature and to make a contribution to improving the environment and the quality of life. Efforts to give *Grün 80* visitors information about the ecological problems of the future, however, usually ended in eye-catching models of superficial garden images that were of little educational use. The majority of visitors to the exhibition expected flowery attractions and did not – according to conclusions drawn by the managers of *Grün 80* – want to be reminded of looming environmental disasters by someone wagging an admonishing finger in their face (*Grün 80*, 1980). The public was really only interested in ‘beautiful nature’, i.e. the ideal image that seems completely untouched and that is dedicated to aesthetic enjoyment and relaxation. This is what the public wants to experience in the natural garden.



FIGURE 10 With his small Garden in Zürich, built in 1996, Dieter Kienast shattered the stereotype image of ecological garden design by integrating natural processes in modern landscape architecture. (© Udo Weilacher).



FIGURE 11 The ‘Mountain Garden’ in Graz, designed by Dieter Kienast in 2000 was a manifesto for contemporary landscape architecture inspired by the visual arts.

Criticising Restorative Thinking and Physiocentrism

Criticism of the popular 'eco-design' gradually grew within the profession, as it was felt that it only focused on the one-sided, idyllic imitation of nature, regardless of the actual environmental conditions of a site to be designed (Fig. 10). Among the most prominent critics of this tendency in the early 1980s were the Zürich landscape architect Dieter Kienast (Kienast, 1981, pp. 120-128) and the Basel planning sociologist Lucius Burckhardt (Burckhardt, 2015). At the time Kienast asked a question that is still important today: What is the social and cultural awareness that was actually concealed behind this new natural garden movement? "We come to an understanding that the progressiveness of natural gardening is associated with a proper amount of restorative ideas as well. We have a future-oriented attitude about social issues that is then confronted by a conservative stance marked by ignorance and uncritical reception concerning cultural issues", wrote the landscape architect (Kienast, 1990, p. 49). He began a vehement fight against a stylistic paralysis that was only interested in a superficial 'naturalness' or, as he called it, 'eco-design'. As early as 1981 he rejected "gardens against people" (Kienast, 1981) just as he was against a manipulation of the concept of nature towards physiocentrism. "Just imagine: at least there is peaceful coexistence among plants!" wrote Kienast in 1979 (p. 1122) in reaction to a demand made by natural gardeners that all foreign plants in gardens be banned. "I'm exasperated by those people who – on behalf of their fellow citizens – in a pastoral tone tell us what should and should not be done, what is good and what is bad, right and wrong, even with regard to gardens" (Kienast, 1979, p. 1122). (Fig. 11)

"Wither garden art?" asked Lucius Burckhardt and warned: "The crisis surrounding garden art exists because it loses meaning due to its constant use of all possible motives and its mixing of opposing elements, so that in the end the viewer is served nothing more than empty formulas. Such use of language elements regardless of their content is called academicism. Here's an example: At the Federal Horticulture Show in Mannheim [Germany 1975] there was an artificial pond whose banks were covered with natural elements – a flat area of sand and gravel gradually gave way to a botanically interesting planting filled with small-leaved species such as iris, etc.. In the pond, however, you could see the nozzle of a powerful fountain, whose artificial plume of water constantly contradicted the design of the pond. This false use of signifiers appears to be symptomatic of the state of our garden art" (Burckhardt, 1981, p. 258). Burckhardt referred to, among other things, the gardens of the French landscape architect and artist Bernhard Lassus, the Scottish artist Ian Hamilton Finlay and the Dutch gardener Louis Le Roy as examples of designs that could help return meaning to garden art and improve the perceptiveness and sensitivity of garden users. These kinds of progressive tendencies, however, tended not to prevail in middle-class garden design. Gardens remained predominantly a traditionally influenced, private refuge, even, or especially, in the urban environment.

The Importance of Gardens in the Metropolitan Landscape Today

The discussion of important episodes in European landscape architectural history of the 20th century illustrates the reasons why the garden as a work of art and gardening, understood as a predominantly decorative activity, became increasingly less important to the profession of landscape architecture. Gardening in general, and home gardening in particular, were not considered to be art or planning and the exclusive private garden was neither believed to be modern nor progressive. The current problems with which landscape architecture is confronted are simply too big and too complex, especially within the context of growing metropolises and the destruction of the global environment. There is no way that these problems can be solved through the use of conventional gardening methods or by protecting the garden microcosm as a luxurious private comfort zone. "I am (...) convinced that our work in public space is

now much more relevant than in the private. My profession is concerned with the question of how we can create a liveable environment for all of our citizens. I can achieve more when I build a good park for 100,000 urban dwellers than when I try to missionize 100,000 private gardeners. The big challenges today are urban densification and a consumption of the landscape of almost 90 hectares per da in (Germany). I teach landscape architecture here at the TU Munich in the belief that we must preserve and further develop, or rather rediscover existing open space in cities in order to create viable conditions in which we all can live – not only for those who can afford to buy their own piece of land” (Weilacher, 2013, p. 15). The image that garden designers and practical gardeners have had of themselves, and the thinking about gardens, have continually changed over the course of the last century. Fundamental questions, however, have remained the same: What characterises the relationship between nature and culture? How can beauty and utility be linked to one another? Gardens, especially the private ones, continue to symbolise the fundamental understanding that people, at a particular period in time, have for nature and the environment, and are bound to the prevailing social conditions of that time. In today’s Western consumer society, private gardens are the primary places of retreat from the hectic pace of modern day life and very individual places of refuge.

For most people, gardening is a sensitive private matter, and “when designing a garden they are longing for paradise. Anyone who plans a garden is designing his ideal world. He uses particular parts of nature – or something he finds in a garden centre – and makes them into his own ideal world. This might be a fruit and vegetable garden that makes him less dependent on industrial food production. It might be a representative garden, where, as in the baroque period, all of the axes emphasise the house where the ruler lives. At present, gardens tend to be well-furnished oases in which to escape one’s stressful day-to-day life” (Weilacher, 2013, p. 15).



FIGURE 12 Gardeners directly experience what it means to assume personal responsibility for the flourishing of nature and the preservation of an intact urban environment, as shown here in Lisbon. (© Udo Weilacher.)



FIGURE 13 Even in European cities, e.g. in Lisbon, gardening is often not a fashionable leisure activity but an ‘art of survival’ for those of low social status and minimal income. (© Udo Weilacher.)

During Leberecht Migge’s lifetime, gardens still fulfilled a central role in the lives of many people, as they were a guarantor of food security for an entire class of industrial workers. In 1930, however, only about 2 billion people inhabited the world. (Fig. 12) Today there are more than 7.7 billion people, and an efficient agro-food industry focused on maximising the harvest ensures the supply of food. This is linked to serious disadvantages for nature and the environment, however, and needs to be carefully observed. (Fig. 13) As long as gardens still had an essential function, gardening was thought of as an important key competence,

an 'art of survival' and the garden was considered a valuable, functional part of the complex metropolitan landscape fabric. Today, gardening in highly developed industrial nations is mainly a leisure activity and numerous amateur organisations, societies, associations, and clubs maintain the tradition of gardening for a variety of reasons. Maximising the harvest in gardens, however, no longer plays a crucial role in highly developed countries. Landscape architecture can no longer focus on small-scale garden design when it wants to create sustainable landscape structures, especially as the understanding and the concept of landscape have significantly changed in the past few decades. "A landscape is not a natural feature of the environment but a synthetic space, a man-made system of spaces superimposed on the face of the land, functioning and evolving not according to natural laws but to serve a community – for the collective character of the landscape is one thing that all generations and all points of view have agreed upon. A landscape is thus a space deliberately created to speed up or slow down the process of nature" (Jackson, 1984, p 8). This definition, written in 1984 by one of the founding fathers of American landscape studies, the historian and literary scholar John Brinckerhoff Jackson, is today considered to be ground-breaking by international experts, because it no longer differentiates between natural and artificial components, urban and rural landscapes. (Fig. 14)



FIGURE 14 In the metropolitan landscape of Munich, the garden is only one of many components that cannot exist when disconnected from the life-supporting network of landscape structures. (© Udo Weilacher)

In the 'Age of Man', the Anthropocene, these traditional differentiations are pointless, because man has a direct or indirect influence on every part of the global environment. The metropolitan landscape, the "Zwischenstadt" as a wide-spread city-country continuum is just a particular form of the anthropogenic landscape complex and the garden is just one of many components that cannot exist when disconnected from the life-supporting network of landscape structures.

The Renaissance of the Metropolitan Garden

Is gardening still relevant in today's metropolises? If one draws consistent conclusions from the above gathered evidence of the 20th century, one would have to clearly say "No!". But it would be very risky indeed to be so quickly satisfied with this answer and to banish garden-thinking from today's landscape architecture. Garden-related thinking may actually give the profession of landscape architecture a strong impetus with regard to the creation of future-oriented environmental development strategies.

In 1983, the German zoologist and behavioural scientist Hubert Markl warned that all life on earth is based on an intact symbiosis of nature and culture. "Our responsibility for life must prove itself on the success of this symbiosis of nature and culture. An example of such a symbiosis we are all familiar with is the garden, which is a form of land use that is more than mere harvest-maximised biotechnology. With regard to our use of the earth, we need this thinking about gardens as a humanising addendum to the calculating rationalness of economic planning. Garden thinking means more than just squeezing everything we can out of the land. A garden is anything but unproductive, cultivated plants determine and dominate it. But it is never only a place of productive efficiency. It is always also a place of organic beauty and harmonious well-being, and although it requires incessant care, it can only be prepared and not produced, let alone forced. A beautiful garden thrives on the richness of its self-expression, from its order as well as its chaos, from intervention as well as from wilfulness, from planning as well as from self-design. It is not only order and is therefore more than a plantation; it is not only wilderness and is therefore also useful. A proper garden is a harmonious mixture of nature and culture. If we take responsibility for the existence of life seriously, then we must also want to have garden thinking and garden action [...] as the basic principle for all land use and design of the land" (Markl, 1983, pp. 25-35).

At the beginning of the 1990s, Dieter Kienast mentioned another aspect that underlines the significance of the garden and garden thinking in our lives today: The garden is the last luxury we have today, as it demands those things that have become the most rare and precious in our society, i.e. time, attention, and space. "It is a true reflection of nature in which, once again, we require spirit, knowledge and craftsmanship in the careful handling of the world and its microcosm, the garden. Changing social values are causing a garden renaissance" (Kienast 1990: 50). In light of current tendencies, referred to collectively as 'urban gardening', it is actually possible to speak of a garden renaissance. If vegetable gardens in cities were considered to be an anachronism or a sign of dislike for cities a decade ago, today they are thought of as being expressions of a progressive environmental consciousness, even if this isn't really true in all cases. As varied as the reasons for gardening in cities may be, from a desire to be self-sufficient to a way of resisting planning paternalism, or as an expression of a wish for intercultural communication, one thing is the same for everyone: "In the garden we learn how to deal with nature without having to deny the creative power within us. And thus, it becomes a model and a test case with regard to how we deal with the entire natural and built environment" (Kienast, 1994, p. 13).

Basic Principles of Garden Thinking – Still Relevant

The current renaissance of garden thinking and urban gardening is so welcome because a multitude of people around the globe, especially those living in urban environments, disconnected from primary production processes, will single-handedly learn (or relearn) many strategies and concepts in their gardens that will be crucial for the protection of environmental quality in the future. Sustainable environmental development can only be achieved if people's awareness about the social and environmental quality of liveable outdoor spaces is increased around the world. Six selected aspects that make self-determined gardening and garden thinking so relevant, especially in the metropolitan context, are discussed here.

a) Reflection about the Complex Interrelationships

Whoever works the soil, cultivates plants, waters, fertilises and maintains, and, ultimately, reaps the fruits of their labour, will begin to recognise the most fundamental principles of urban ecosystems. This trend is sometimes called 're-grounding'. Assuming that a garden – even in the metaphorical sense – cannot exist without nature, neither as an idealised image of pristine nature nor as a cultivated manifestation of domesticated nature, then change is inevitably one of the most important inherent properties of the garden. This understanding about complex changing interrelationships is especially relevant for a better comprehension of the complexity, dynamics, heterogeneity, entanglement and variety of the larger metropolitan landscape.

b) Patience when working with nature and the environment

Both faith in rapid success and the demand for quick results dominate today's working world far too much, even in architecture, landscape design, or urban planning. A huge, mostly computer-controlled arsenal of technology is available in these fields and allows for greatly accelerated processes of design and decision-making. This speed, however, no longer adequately relates to the slow passage of real time in the built and natural environment. Nature does not 'function' like a machine, but rather has only one permanent feature: the permanence of change. This change, however, does not first become apparent during a sudden eruption of natural forces, but rather takes place in a very slow and harmonious fashion, easily experienced in a garden.

c) Personal Responsibility and Initiative

People who create and maintain a garden must get physically involved. Personal responsibility and initiative on the part of citizens are important issues in metropolitan life, especially in face of increasingly insistent and expanding consumerism. For many people, it's a matter of course that they will be able to live in a well-designed environment made according to their wishes. Those who are actively involved in gardens directly experience, in the best sense of the word, what it means to assume responsibility for the flourishing of nature and for the preservation of an environment they have helped to shape. Planners owe much to the re-emergence of civic engagement and to many initiatives around the world that support the development of new urban space.

d) Sensitivity for the Various Qualities of the Environment

With time, the practical exploration of nature and technology in a garden leads to a greater awareness of the environment and to a good sense of the fascinating interaction between nature and the artificial, quiescence and vigour, form and function, space and time. In the garden, these relationships convey, in a very direct and manageable way, those things that encourage a sharpening of the senses. In the future, planners, designers, and architects can only expect broad public acceptance for their work if they deal with a metropolitan public who is able to appreciate high-quality environmental design. Ideally, such appreciation would be cultivated through their own creative experience.

e) Personal Responsibility for the Environment and its Maintenance

The increased sense of responsibility for the personal environment is a good foundation for the creation of new public spaces and the preservation of existing ones, especially as public resources for the maintenance of open space in cities are becoming increasingly scarce. If urban dwellers lose their sense of responsibility, public space in cities is inevitably threatened with being utterly neglected. Today's landscape and urban design projects often only have a chance of longevity if local residents are willing to take on a particular

degree of responsibility for the maintenance and care of open space they feel 'belongs' to them. All too often, this interaction, i.e. the meaningful cooperation between an individual and a public sense of responsibility, is neglected during the planning of new public open space.

Unfortunately, and this is a problematic aspect of the current urban gardening movement, many garden activists consciously describe themselves as autonomous amateurs and rigorously reject the efforts of professional landscape architects and urban planners to aesthetically improve inner-city open space. In doing so, there is an occasional reference to the radical positions of "the guiding spirit of gardening in the city" (Müller, 2011, p. 15), Leberecht Migge. "The aesthetic of the garden is improvised, playful. [...] The biggest and virtually contemptible enemies of this aesthetic, however, are functional and perfectionist materials; everything that seems to be large calibre and serious and – no matter how subtle it might be – demanding of authority, should be frowned upon and banned" (Werner, 2011, p. 71). As mentioned above, designing and managing a garden teaches that all activities in the 'system of spaces', the landscape, are somehow interrelated and should not be dealt with separately.

f) Inventiveness and Experimentation

"The garden is the place where the great inventions of our time are made" said Bernard Lassus in 1996 (Weilacher, 1996, p. 109) in recollection of the gardens of the Renaissance, which were inspiring places of invention in their day. From sophisticated watering technologies to natural cooling systems – the inventiveness of gardens has always been unlimited. In all of the facets of today's metropolitan gardens there is an amazing love of invention and experimentation, be it the organisation of a water supply, the development of new types of planters, or the horticultural use and design of unusual urban space. Garden pioneers discover new garden niches in the city. In the highly complex metropolitan landscape, it is often in the undiscovered niches where new living environments can be discovered, developed, and qualified.

Conclusion

At the beginning of the 21st century, gardens have once again gained importance as testing grounds for art, culture, and social interaction. Gardens created for interim use on unused sites and as catalysts for new metropolitan development concepts are driven by the eternal longing for paradise and the desire to transform the image of Arcadia into a vibrant and sensually perceptive space. In today's societies of mass consumption, which are suffering from social division and an increasing disconnect from natural environments and primary production processes, active gardening as an immediate experience and gardens as experiential and experimental spaces play a very important role. In contrast to the 20th century, garden design might no longer be the central focus of the professional urban planners and landscape architects of the 21st century, for comprehensible reasons. But those who work professionally in the development of today's "system of spaces", landscapes, living environments for man and nature, 'Zwischenstadt' or metropolitan landscapes should take garden thinking seriously. Neglecting to do so will run the great risk of not being able to contribute to the success of an intact symbiosis of nature and culture. In future metropolitan planning, garden thinking – not at all confined to an understanding of the term 'garden' in a literal sense - will play a much more crucial role than today.

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